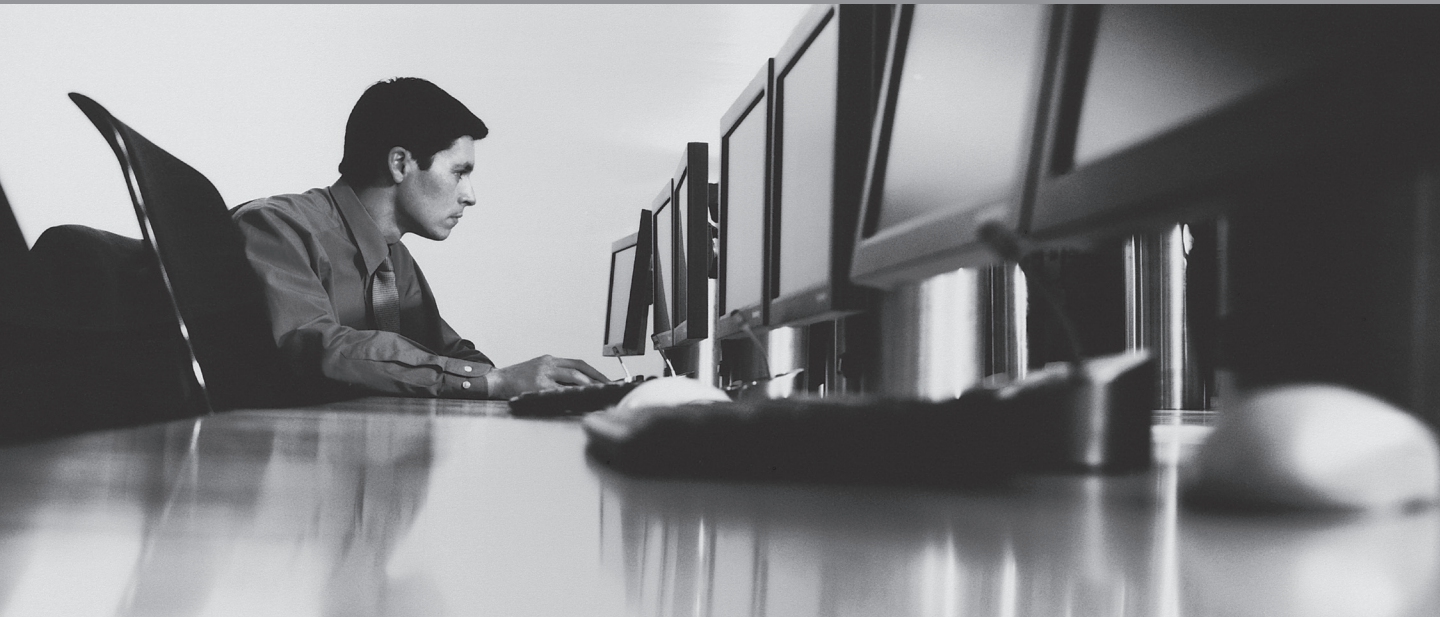
Avocent®

Cyclades® ACS 6000

Installation/Administration/User Guide



FCC Warning Statement

The Cyclades ACS advanced console server has been tested and found to comply with the limits for Class A digital devices, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the Installation and Service Manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user is required to correct the problem at his or her own expense.

Notice about FCC Compliance for All Cyclades ACS Advanced Console Server Models

To comply with FCC standards, the Cyclades ACS advanced console server requires the use of a shielded CAT 5 cable for the Ethernet interface. Notice that this cable is not supplied with either of the products and must be provided by the customer.

Canadian DOC Notice

The Cyclades ACS advanced console server does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

L'Cyclades ACS advanced console server n'émete pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le règlement sur le brouillage radioélectrique edicté par le Ministère des Communications du Canada.

Safety and EMC Approvals and Markings

FCC Class A (USA), CE Class A (EU), ICES-003 (Canada), VCCI (Japan), C-Tick (Australia, no internal modem), A-Tick (Australia, with internal modem), UL 60950-1 (USA), cUL (Canada), EN-60950-1 (EU), CB

Cyclades® ACS 6000 Advanced Console Server

Installation/Administration/User Guide

Instructions

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Dangerous Voltage

This symbol is intended to alert the user to the presence of uninsulated dangerous voltage within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

Power On

This symbol indicates the principal on/off switch is in the on position.

Power Off

This symbol indicates the principal on/off switch is in the off position.

Protective Grounding Terminal

This symbol indicates a terminal which must be connected to earth ground prior to making any other connections to the equipment.

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CHAPTER 1

Introduction

The Cyclades ACS 6000 advanced console server is a 1U appliance that serves as a single point for access and administration of connected devices, such as target device consoles, modems and power devices. ACS 6000 console servers support secure remote data center management and out-of-band management of IT assets from any location worldwide.

NOTE: Unless noted, references to the ACS 6000 console server refer to all models in the 60XX series.

ACS 6000 console servers provide secure local (console port) and remote (IP and dial-up) access. The console servers run the Linux® operating system with a persistent file system in Flash memory, and they can be upgraded from either an FTP or DSView® software server.

You can use the Web Manager, the Command Line Interface (CLI utility) or DSView 3 management software (version 3.5.1 and greater) to configure the ACS 6000 console server. Multiple administrators can be logged into the console server at the same time.

Two PC card/slots support modem (V.92 and Wireless GSM/CDMA), Ethernet, fast Ethernet (fiber optic), wireless LAN and storage PC cards (16 bit and 32 bit). One USB port supports modem (V.92 and Wireless GSM/CDMA), storage devices and USB hubs. Two fast Ethernet ports support connections to more than one network or configuration of Ethernet bonding (failover) for redundancy and greater reliability. For dial-in and secure dial-back with Point-to-Point Protocol (PPP), optional internal modems can be factory installed, or you can use external modems or wireless modem CardBus devices.

Features and Benefits

Web Manager

Users and administrators perform most tasks through the Web Manager (accessed with HTTP or HTTPS). The Web Manager runs in any supported browser (such as Netscape®, Internet Explorer®, Firefox® or Mozilla®) on any supported computer that has network access to the console server.

The administrator can use the Web Manager to create user accounts, authorize groups and configure security and ports. An authorized user can access connected devices through the Web

Manager to troubleshoot, maintain, cycle power, reboot connected devices and change the user password. For more information on the Web Manager, see Chapters 3 and 4.

Access options

Secure access is available through the following local (analog console port) and remote (digital IP and dial-up) options:

- LAN/WAN IP network connection.
- Dial-up either to a factory-configured internal modem (optional), to a modem connected either to a serial port or the AUX port (which is only possible when an internal modem is not installed), or to a PC phone card (modem, GSM or CDMA) installed in one of the PC card slots or in the USB port.
- Target device connection. If a serial port is connected to the console of a device, an authorized user can make a Telnet, SSH v1 or SSH v2 connection to the device console through the Web Manager. An authorized user can also use a Telnet or SSH client to make a connection directly to the console of a target device. (For Telnet or SSH to be used for target device connections, the Telnet or SSH service must be configured in the security profile that is in effect.)
- ACS 6000 console server console connection. An administrator can log in either from a local terminal or from a computer with a terminal emulation program that is connected to the console port and can use the CLI utility. The CLI utility prompt (--|- cli>) displays at login.

More than one administrator (root or admin or a user in the administrator group) can log into the console server and have an active CLI or Web Manager session. All sessions receive a warning message when the configuration is changed by another administrator or by the system: *The appliance configuration has been altered from outside of your session.* Upon receipt of this message, each administrator needs to verify that changes made during the session were saved.

NOTE: If cron jobs are run by automated scripts, a root or admin user login can cause the cron jobs to fail.

IPv4 and IPv6 support

The ACS 6000 console server supports dual stack IPv4 and IPv6 protocols. The administrator can use the Web Manager or CLI to configure support for IPv4 addresses only or for both IPv4 and IPv6 addresses. The following list describes the IPv6 support provided in the console server:

- DHCP
- Dial-in sessions (PPP links)
- DSView software integration
- eth0 and eth1 Ethernet interfaces
- Firewall (IP tables)
- Linux kernel
- Remote authentication: Radius, Tacacs+, LDAP and Kerberos servers
- SNMP

- SSH and Telnet access
- Syslog server

NOTE: Remote authentication NIS and IPSec are not supported with IPv6.

Flexible users and groups

An account can be defined for each user on the console server or on an authentication server. The admin and root users have accounts by default, and either can add and configure other user accounts. Access to ports can be optionally restricted, based on authorizations that an administrator can assign to custom user groups. Groups can be authorized to manage power while connected to devices. For more information, see *Users Accounts and User Groups* on page 44.

Security

Security profiles determine which network services are enabled on the console server. Using the Web Manager or the CLI, you can configure automatic detection of PC cards and USB devices or RPC. You can either allow all users to access enabled ports or allow the configuration of group authorizations to restrict access. You can also select a security profile, which defines which services (FTP, ICMP, IPSec and Telnet) are enabled and SSH and HTTP/HTTPS access. The administrator can select either a preconfigured security profile or create a custom profile. For more information, see *Security Configuration* on page 39.

Authentication

Authentication can be performed locally, with One Time Passwords (OTP), or on a remote Kerberos, LDAP, NIS, Radius or TACACS+ authentication server. If the ACS 6000 console server is managed by a DSView 3 server, DSView authentication is also supported. The console server also supports remote group authorizations for the LDAP, Radius and TACACS+ authentication methods. Fallback mechanisms are also available.

An administrator can configure authentication using the CLI utility and the Web Manager. Any authentication method that is configured for the console server or the ports is used for authentication of any user who attempts to log in through Telnet, SSH or the Web Manager. For more information, see *Authentication* on page 41.

VPN based on IPSec with NAT traversal

If IPSec is enabled in the selected security profile, an administrator can use the VPN feature to enable secure connections. IPSec encryption with optional NAT traversal (which is configured by default) creates a secure tunnel for dedicated communications between the console server and other computers that have IPSec installed, such as routers, firewall machines, application servers and end-user machines. ESP and AH authentication protocols, RSA Public Keys and Shared Secret are supported. For more information, see *IPSec(VPN)* on page 55.

Packet filtering

An administrator can configure the device to filter packets like a firewall. Packet filtering is controlled by chains. A chain is a named profile configured with one or more rules that define both a set of characteristics to look for in a packet and what to do with any packet that has the defined characteristics. The console server filter table contains a number of built-in chains that cannot be deleted; all input and output packets and packets to be forwarded are accepted. The policies for how to handle built-in chains can be modified.

To configure packet filtering, an administrator can add a new chain and specify rules for that chain, add new rules to existing chains and edit a built-in chain or delete the built-in chain rules.

SNMP

If SNMP is enabled in the selected security profile, an administrator can configure the Simple Network Management Protocol (SNMP) agent that resides on the console server to send notifications about significant events or traps to an SNMP management application.

The console server SNMP agent supports SNMP v1/v2 and v3, MIB-II and Enterprise MIB. For more information, see *SNMP Configuration* on page 56.

NOTE: The text files with the Enterprise MIB (ACS6000-MIB.asn) and the TRAP MIB (ACS6000-TRAP-MIB.asn) are available in the appliance under the /usr/local/mibs directory.

Data logging, notifications, alarms and data buffering

An administrator can set up logging, notifications and alarms to alert administrators of problems with email, SMS, SNMP trap or DSView 3 software notifications. The administrator can also configure storage of data in data buffer files. Buffered data can be stored locally in the RAM disk or on storage PC cards or a storage USB device, or remotely either on an NFS server or a syslog server. DSView 3 management software can also be used to store buffered data.

Local and remote data logging (NFS) includes support for rotations and for commands to search for strings. Data logging when the console server is managed by DSView 3 management software requires a license. Messages about the console server and connected servers or devices can also be sent to syslog servers.

Power management

Connected power devices can be used for remote power management. The ACS 6000 console server enables users who are authorized for power management to turn power on, turn power off and reset devices that are plugged into a connected PDU. The power devices can be connected to any serial port or to the AUX/Modem port (if an internal modem is not installed). For more information, see *Power Management* on page 59.

Auto discovery

An administrator can enable auto discovery for a serial port. If the hostname of the connected target device is successfully discovered, the hostname is shown instead of the serial port alias. This feature can save time for administrators because they do not need to enter port aliases manually.

NOTE: If the console server is being managed through DSView 3 software, hostname discovery can be configured through the DSView 3 software.

Default probe and answer strings used for auto discovery have a broad range and work in most cases. An administrator can configure site-specific probe strings and answer strings.

Configuration Example

The following graphic and table illustrate a typical ACS 6000 console server configuration.

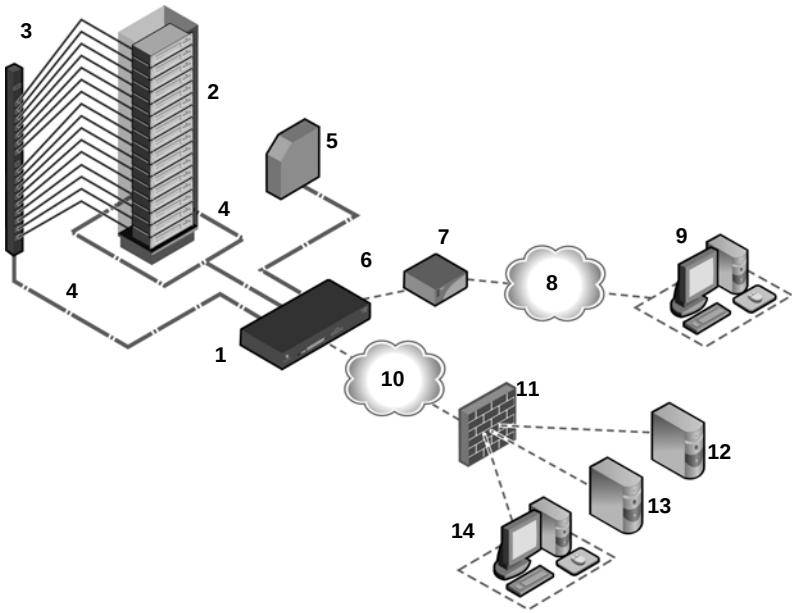

Figure 1.1: Typical ACS 6000 Advanced Console Server Configuration

Table 1.1: Typical ACS 6000 Advanced Console Server Configuration Descriptions

Number	Description	Number	Description
1	ACS 6000 advanced console server	**8**	Phone line
2	Target devices	**9**	Remote dial-in client
3	PDU (one or more)	**10**	Local Area Network (LAN)

Table 1.1: Typical ACS 6000 Advanced Console Server Configuration Descriptions (Continued)

Number	Description	Number	Description
4	Serial port connection	**11**	LAN firewall
5	PC card (modem, Ethernet or storage)	**12**	Remote authentication server
6	Either AUX/Modem or any serial port	**13**	DSView client/server
7	Modem ordered and configured internally at the factory -or- External modem (on a device in one of the PC card slots or USB port, or connected to a serial port or the AUX port)	**14**	Remote/local Windows/Linux computer

CHAPTER 2

Installation

Rack Mounting

You can mount the ACS 6000 console server in a rack or cabinet or place it on a desktop or other flat surface. For rack or cabinet mounting, two mounting brackets are supplied with six hex screws to connect the brackets to the console server. You will also need a Phillips screwdriver and the appropriate nuts and bolts to connect the mounting brackets to the rack.

To rack mount the console server:

1. Install the brackets at the front or back edges of the ACS 6000 console server with the screws provided with the mounting kit.
2. Mount the console server in a secure position.

Figure 2.1: Bracket Connections for Front Mount Configuration

Connecting the Hardware

ACS console server connectors

The following figure shows the connectors on the front of the ACS 6000 console server.

Figure 2.2: Front of the Console Server with PC Card Slots and LEDs (ACS 6032 Console Server Shown)

Table 2.1: Connectors on the Console Server Front

Number	Description
1	USB connector. Supports the following USB devices: modem, wireless modem, storage and USB hub.
2	LEDs. See Table 2.2.
3	PC card slots. Supports modem (wireless V.92), Ethernet, Fast Ethernet and storage device PC cards.

Table 2.2: LEDs on the Console Server Front

Label	Description
PWR/CPU	Blue • Blinks - During unit boot • Solid - During operation • Off - Power is off
ETH 0/ETH 1	• Amber - Link at 10BaseT speed • Yellow - Link at 100BaseT speed • Green - Link at 1000BaseT speed • Off - No link/cable disconnected/Ethernet fault
AUX/MODEM	Dual LED: Yellow on top, green on bottom • Yellow - DTR/DCD activity • Green - TXD and RXD activity • Off - No activity
[One LED for each serial port]	Green • Blinks - Ready, with activity • Solid - Ready • Off - Not ready

The following figure shows the rear connectors on the console server.

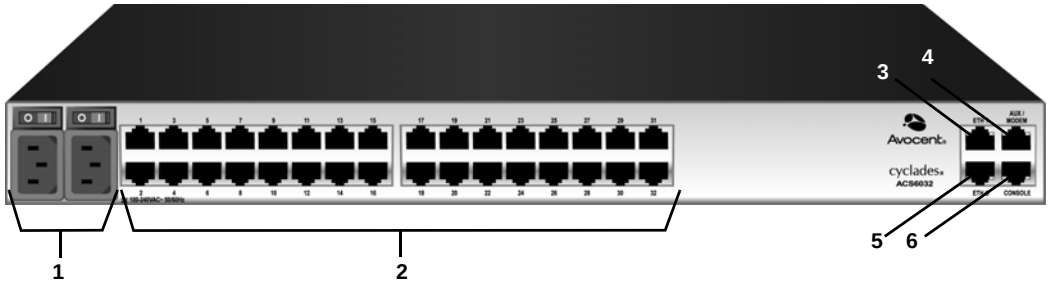

Figure 2.3: Rear of the Console Server (ACS 6032 Console Server Shown)

Table 2.3: Connectors on the Console Server Rear

Number	Description
1	Power supplies (dual AC shown). Models come with either single or dual AC or DC power.
2	Serial ports (32 ports shown). Models come with 16, 32 or 48 serial ports to connect to device consoles, power devices or external modems.
3	ETH 1 10/100M/1G Ethernet port. Can be connected to a second network or used for failover.
4	AUX/Modem port - if an optional internal modem is ordered, this port is defined as a V.92 modem at the factory and can be used to connect the console server to a dedicated phone line; otherwise, the port is factory-defined as RS-232 with an RJ-45 Cyclades pinout and can be used to connect either an external modem or a power device.
5	ETH0 10/100M/1G Ethernet port for remote IP access.
6	Console port allows for local administration and access to connected devices through a terminal or a computer with a terminal emulator.

Device consoles or modems to serial ports

Use CAT 5 or greater cables and DB-9 or DB-25 console adaptors as needed to connect target device consoles or modems to the serial ports on the console server.

The ACS 6000 console server supports two different serial port pinout configurations, Cyclades and Cisco®. The default is Cyclades. If a Cisco cable is connected to the port, the administrator must reconfigure the pinout for the port. The administrator selects *Units - Appliance Settings - Ports - Physical Ports* and selects the *Cisco* option from the RJ-45 Pinout drop-down menu.

The following tables show serial port pinout information, which you can use to create cables.

Table 2.4: Cyclades Serial Port Pinout

Pin No.	Signal Name	Input/Output
1	RTS	OUT
2	DTR	OUT
3	TxD	OUT
4	GND	N/A
5	CTS	IN
6	RxD	IN
7	DCD/DSR	IN
8	Not Used	N/A

Table 2.5: Cisco Serial Port Pinout

Pin No.	Signal Name	Input/Output
1	CTS	IN
2	DCD/DSR	IN
3	RxD	IN
4	GND	N/A
5	Not Used	N/A
6	TxD	OUT
7	DTR	OUT
8	RTS	OUT

To connect device consoles to serial ports:

Make sure the crossover cable used to connect a device has the same pinouts type that is configured in the software for the port (either Cyclades or Cisco).

1. Make sure the power switches on devices are turned off.
2. To connect the console ports of devices to the serial ports, use CAT 5 or greater crossover cables.

3. To connect modems, use straight-through CAT 5 or greater cables, with RJ-45 connectors on one end and the appropriate connectors or adaptors (USB, DB-9 or DB-25) for the modem on the other end.

See *Power devices* on page 11 for more information on connecting power devices.

See *To install a pluggable device:* on page 17 for more information on installing PC cards.

NOTE: To comply with EMC requirements, use shielded cables for all port connections.

WARNING: Do not turn on the power on the connected devices until after the console server is turned on.

Power devices

The following figure shows two daisy-chained Cyclades PDUs connected to serial port 2 on a console server.

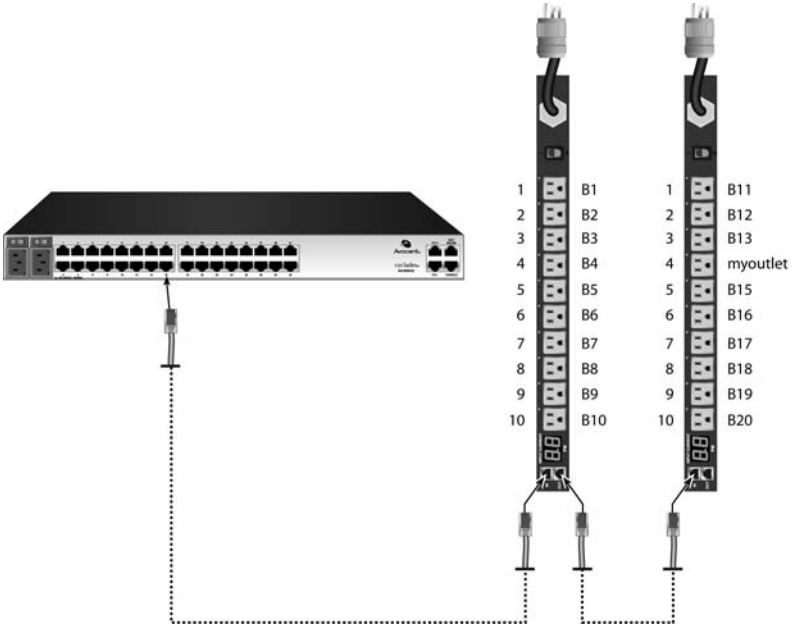

Figure 2.4: Example: Daisy-chained Cyclades PDUs

To daisy-chain Cyclades PDUs to the console server:

This procedure assumes that you have one Cyclades PM PDU connected to a serial port on the console server.

NOTE: Daisy chaining is not possible with SPC PDUs. ServerTech PDUs will allow only one level (Master and Slave) of daisy chaining.

1. Connect one end of a UTP cable with RJ-45 connectors to the OUT port of the Cyclades PDU connected to the serial port on the console server.
2. Connect the other end of the cable to the IN port of the next Cyclades PDU.
3. Repeat steps 1 and 2 until you have connected the desired number of Cyclades PDUs.

NOTE: For performance reasons, Avocent recommends connecting no more than 128 outlets per serial port.

NOTE: If the outlet has been assigned a name, such as “myoutlet,” entering **myoutlet** is sufficient and no other path name is needed.

Power Configuration

The console server is supplied with single or dual AC or DC power supplies.

WARNING: Always execute the reboot command through the Web Manager or CLI under the Overview/Tools node before power cycling the appliance. This will ensure that the reset doesn't occur while the file system in Flash is being accessed and it helps avoiding Flash memory corruptions.

To configure AC power:

1. Make sure that the power switch on the console server is turned off.
2. Plug the power cable into the console server and into a power source.
3. Turn the console server on.
4. Turn on the power switches of the connected devices.

To configure DC power:

DC power is connected to DC-powered console servers by way of three wires: Return (RTN), Ground (GND) and -48 VDC.

WARNING: It is critical that the power source supports the DC power requirements of your console server. Make sure that your power source is the correct type and that your DC power cables are in good condition before proceeding. Failure to do so could result in damage to the equipment or in personal injury.

The following diagram shows the connector configuration for connecting DC power. You may use either a flat-blade or Phillips screwdriver for this procedure.

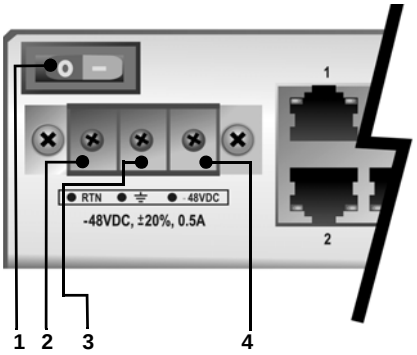

Figure 2.5: DC Power Connection Terminal Block

Table 2.6: DC Power Connection Details

Number	Description	Number	Description
1	Power switch	**3**	GND (Ground)
2	RTN (Return)	**4**	-48 VDC

1. Make sure that the power switch on the console server is turned off.
2. Make sure that DC power cables are not connected to a power source.
3. Remove the protective cover from the DC power block by sliding it to the left or right.
4. Loosen all three DC power connection terminal screws.
5. Connect your return lead to the RTN terminal and tighten the screw.
6. Connect your ground lead to the GND terminal and tighten the screw.
7. Connect your -48 VDC lead to the -48 VDC terminal and tighten the screw.
8. Slide the protective cover back into place over the DC terminal block.
9. If your console server has dual-input DC terminals, repeat steps 3 - 8 for the second terminal.
10. Connect the DC power cables to the DC power source and turn on the DC power source.
11. Turn on the console server.
12. Turn on the power switches of the connected devices.

ACS 6000 Remote Console Server Configuration

You may make an Ethernet connection or a direct connection to access the remote console switch. For information on accessing the Web Manager and performing first time configuration steps, see *Using the Web Manager* on page 15 and *First Time Configuration* on page 19.

Making an Ethernet connection

To make an Ethernet connection, connect an Ethernet cable to the port labeled 10/100/1000Base-T and to an Ethernet hub or switch.

Making a direct connection

To connect a computer or terminal to the console port:

1. Connect a CAT 5 straight-through cable with RJ-45 connectors to one of the supplied RJ-45 adaptors.
2. Connect the RJ-45 end of the cable to the Console port on the console server.
3. Connect the adaptor end of the cable either to a terminal or a computer that has a terminal emulation program.

To configure network parameters:

1. Connect to the Console port using a terminal or computer with a terminal emulation program.
2. Make sure the terminal settings are: *9600*, *8*, *N* and *1*, flow control *None*.
3. Log in to the console server as **admin**, with the default password **avocent**. The CLI prompt appears.

   ```
   --|- units cli->
   ```
4. At the command prompt, enter **wiz** to view and/or change the current IP configuration.

   ```
   --|- units cli-> wiz
   ```
5. Set the IP configuration for Eth0 by pressing **Enter** to maintain the current value, **Tab + Tab** to see the option(s) or **Esc + Tab** to see the current parameter value for editing.

   ```
   eth0:
       IPv4 Address: 172.26.30.241
       IPv6 Address:
       status :
       ipv4_method :
       ipv6_method :
       MAC Address: 00:e0:86:0c:57:5d
   dns:
       primary :
       secondary :
       domain :
       hostname :
   ```
6. Type **yes** to confirm and save the new configuration.

   ```
   Are all these parameters correct? (no, yes, quit)  [no] :
   ```

NOTE: DHCP is the default IP configuration. A fixed IP address must be available for users to access the Web Manager.

Accessing an ACS Console Server

Using the Web Manager

An IP address is needed to launch the Web Manager in a browser. The IP address is usually configured as a static IP address assigned to the console server during initial configuration. If DHCP is used, then the user must be able to discover the IP address assigned by the DHCP server.

The console server ships with DHCP enabled. Users can access the Web Manager with either a DHCP-assigned IP address, an administrator-assigned static IP address or the default IP address (192.168.160.10). For information on how to log in, see *To log into the Web Manager:* on page 15.

If you do not configure a static address, if a DHCP server is not on the network or if it fails to discover the IP address of the console server, you can enter the default static IP/subnet mask addresses of 192.168.160.10/255.255.255.0 for eth0 and 192.168.161.10/255.255.255.0 for eth1.

To use the default IP address to access the Web Manager:

Both the desktop and the console server should be in the same physical network. Add the host route 192.168.160.10/32 to the Ethernet interface. The following example adds the route to eth0 on the console server on a Linux machine:

```
# route add - host 192.168.160.10 eth0
```

To log into the Web Manager:

1. Enter the IP address of the console server in the address field of a browser.
2. Enter your username and password.

NOTE: Username and password are case sensitive.

NOTE: After logging into the Web Manager for the first, you must complete the First Time Configuration screen. See *First Time Configuration* on page 19 for more information.

Using Telnet/SSH

An authorized user can use a Telnet or SSH client to make a connection directly to the console of a device if the following are true:

- The Telnet or SSH protocol is enabled in the selected security profile.
- The Telnet or SSH protocol is configured for the port.
- The Telnet or SSH client is available, and it is enabled on the computer from which the connection is made.

To view and connect to devices with the Web Manager:

1. Select *Topology* in the side navigation bar. The content area displays the name of the console server.

2. Select the down arrow next to the console server name. A list of either default port names or administrator-defined aliases for all installed and configured devices for which the user is authorized appears.
3. Select *Serial Viewer* from the Action column. A Java applet viewer appears. In a gray area at the top of the viewer, the Connected to message shows the IP address of the console server followed by the default port number or alias.
4. Log in if prompted.

To use Telnet to connect to a device through a serial port:

For this procedure, you need the username configured to access the serial port, the port name (for example, 14-35-60-p-1), device name (for example, ttyS1), TCP port alias (for example, 7001) or IP port alias (for example, 100.0.0.100) and the hostname of the console server or its IP address. The following example assumes that the Telnet service is supported on the operating system where the telnet command is entered.

To use a Telnet client, enter the information in the dialog boxes of the client.

-or-

To use Telnet in a shell, enter the following command:

```
# telnet hostname | IP_address
login: username:[portname | device_name]
```

-or-

```
# telnet hostname TCP_Port_Alias
login: username
```

-or-

```
# telnet IP_Port_Alias
login: username
```

To close a Telnet session:

Enter the Telnet hotkey defined for the client. The default is **Ctrl] + q** to quit, or enter the text session hotkey for the CLI prompt and then enter **quit**.

To use SSH to connect to a device through a serial port:

For this procedure, you need the username configured to access the serial port, the port name (for example, 14-35-60-p-1) or device name (for example, ttyS1), and the hostname of the console server, IP address or IP Port alias (for example, 100.0.0.100).

To use an SSH client, enter the information in the dialog boxes of the client.

-or-

To use SSH in a shell, enter the following command:

ssh -l *username*:*port_name* [*hostname* | *IP_address*]

-or-

ssh -l *username*:*device_name* [*hostname* | *IP_address*]

-or-

ssh -l *username IP_Port_Alias*

To close an SSH session:

At the beginning of a line, enter the hotkey defined for the SSH client followed by a period. The default is **~**. Or, enter the text session hotkey for the CLI prompt and then enter **quit**.

Pluggable Devices Installation and Configuration

Insert and configure pluggable devices (PC cards and/or USB devices) only after you enable PC Card and USB Device Detection, as described in the following procedure.

Go to http://www.avocent.com to see the current list of supported pluggable devices.

NOTE: When a pluggable device is not listed in the internal database, the Device Info column may show no text at all or show different text based on the type of card. One example is Unknown device f024 (rev 01).

NOTE: When a pluggable device is not in the current list of supported pluggable devices (PC cards and USB devices), if the device is detected by the console server, the console server attempts to configure the device with standard settings. The device might operate normally but it might not be supported by Avocent.

To enable Pluggable Device Detection:

1. Select *Appliance Settings* - *Security* - *Security Profile* in the Web Manager. The Security Profile content area is displayed.
2. Select *Enabled* from the PC Card and USB Device Detection drop-down menu.

NOTE: When using wireless devices, changes made to a configuration will take effect only after the device is ejected and then re-inserted.

To install a pluggable device:

1. Insert the PC card into slot 1 or slot 2 or connect the USB device in the USB port.
2. Select *Appliance Settings* - *Pluggable Devices* in the Web Manager. The Pluggable Devices content area is displayed. If Pluggable Devices Detection is enabled, the inserted pluggable device's Device Name, Device Type and Device Info are shown.

NOTE: A hard disk PC card and a USB storage device are automatically mounted and configured once it is inserted.

To configure a pluggable device:

1. Select *Application Settings - Pluggable Devices* in the Web Manager. The Pluggable Devices content area is displayed and all mounted pluggable devices are shown.
2. Click on the pluggable device name. The page for the pluggable device type is displayed.
3. Configure the pluggable device parameters.

NOTE: PC card and USB storage devices are automatically configured.

To eject a pluggable device:

CAUTION: Always use the Web Manager to eject a pluggable device. Any other method may cause a kernel panic.

1. Select *Application Settings - Pluggable Devices* in the Web Manager. The Pluggable Devices content area is displayed and all mounted pluggable devices are shown.
2. Select the checkbox next to the pluggable device name you want to eject, then click *Eject*.
3. Remove the pluggable device by removing the PC card from the slot or the USB device from the USB port.

CHAPTER 3

Web Manager Overview

An ACS 6000 console server can be accessed and managed via the Web Manager, SSH or Telnet.

First Time Configuration

The first time that the admin logs into the Web Manager after installation, the First Time Configuration screen appears. An administrator uses the options in the left menu to enable and configure security, ports and users.

To open the First Time Configuration screen:

1. Open a web browser and enter the console server IP address in the address field.
2. Log in as **admin** with the password **avocent**. The First Time Configuration screen appears.

To configure security parameters and select a security profile (First Time Configuration):

1. Select *Security* from the left menu on the First Time Configuration screen. The Security Profile screen appears.
2. (Optional) To enable the console server to automatically detect and download drivers from connected pluggable devices, select the checkbox next to PC Card and USB Device Detection.
3. (Optional) To enable RPC, select the *RPC* checkbox.
4. (Optional) To enable the security option that supports group authorizations for port access, select the checkbox next to *Port access is controlled by authorizations assigned to user groups.*
5. Either select one of the default security profiles from the Security Profile pull-down menu, or select *Custom* to configure a customized security profile.
6. Click *Save*.
7. If the Custom Security Profile is selected, perform the following steps.
   a. Select the *Custom* option from the left menu.
   b. Click the checkboxes and enter values as needed to configure the services, SSH and WEB (HTTP and HTTPS) options to conform with your site security policy.
   c. Click *Save*.

To configure users and change the default user passwords (First Time Configuration):

WARNING: For security reasons, it is recommended that you change the default password for both root and admin users immediately.

1. Select *Users* from the left menu on the First Time Configuration screen. The User Names screen appears.
2. Do the following twice to change the default password for root and for admin.
   a. Click the username (*admin* or *root*).
   b. Enter the new password in the Password and the Confirm Password fields.
   c. Click *Save* to save the new password.
3. Do the following as many times as needed to configure new user accounts and assign them to default groups.
   a. Click *Add*.
   b. Enter the username in the User Name field.
   c. Enter the new password in the Password and the Confirm Password fields.
   d. (Optional) Force the user to change the password, select the checkbox for User must change password at next login.
   e. Assign the user to one or more groups.

NOTE: By default, all configured users can access all enabled ports. Additional configuration is needed if your site security policy requires you to restrict user access to ports.

   f. (Optional) Configure account expiration and password expiration.
   g. Click *Save*.

NOTE: The admin and all users in the administrator group can also select *Appliance Settings-Users-Local Accounts-User Names* to configure users.

To enable and configure all ports (First Time Configuration):

1. Select *Ports* from the left menu on the First Time Configuration screen. The Default Settings screen appears.
2. Select the connection protocol that users can use for direct connections to all ports from the Protocol pull-down menu, either Telnet, SSH or Telnet/SSH.

NOTE: The service must also be enabled in the security profile that is in effect.

3. Select a default authentication type that applies to all port logins from the Authentication Type pull-down menu.
4. To enable the software to automatically discover the names of devices connected to the ports, click the *Enable auto discovery* checkbox.

5. Configure the remaining port parameters as needed.
6. Click *Save*.
7. Select *Physical Ports* from the left menu. The Physical Ports screen appears.
8. To enable and perform additional configuration on all ports at once, click the checkbox on the top line of the ports list.
9. To enable and perform additional configuration on one or more ports at once, click the checkbox(es) on the entry for each port.
10. Click *Edit.*
11. To enable the selected port(s), select *Enabled* from the Status menu.
12. (Optional) To change the default pinout when a Cisco cable is connected to the selected port(s), select *Cisco* from the RJ-45 Pinout menu.
13. For port(s) connected to the console of a target device, leave CAS selected in the Serial Profile menu.
14. For port(s) connected to a PDU, select *Power* from the Serial Profile menu.
15. For port(s) connected to a modem, select *Dial-in* from the Serial Profile menu.
16. To reconfigure the connections settings to match the device(s) connected to the selected port(s), make the needed changes in the Communication Settings area of the screen.

NOTE: The administrator can also select *Units - Appliance Settings - Ports - Default Settings* and *Units - Appliance Settings - Ports - Physical Ports* to enable and configure individual ports and perform other advanced configuration.

17. Click *Save*.

To close the First Time Configuration screen:

Select *Finish* from the left menu on the First Time Configuration screen.

Web Manager Overview for Administrators

The following figure shows a typical screen when an administrator is logged into the Web Manager.

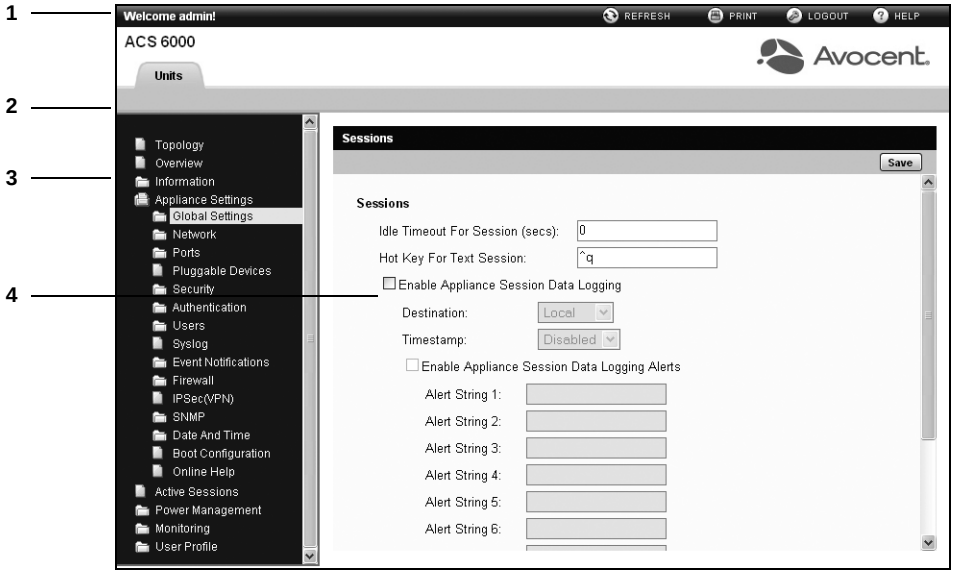

Figure 3.1: Administrator Web Manager Screen

Table 3.1: Web Manager Screen Areas

Number	Description
1	Top option bar. The name of the logged in user appears on the left side and Refresh, Print, Logout and Help buttons appear on the right.
2	Tab bar. Only the Units tab appears for the ACS 6000 Web Manager.
3	Side navigation bar. Menu options for configuration, viewing of system information and access to devices. The options change based on user type.
4	Content area. Contents change based on the options selected in the side navigation bar.

The following table provides an overview of the tools under Appliance Settings that are used by administrators to configure the system.

Table 3.2: Web Manager Options for Administrators

Heading	Description
Global Settings • Sessions • Sensors • Data Buffering	• Click *Sessions* to configure global session parameters for idle time-out, data logging, destination, timestamp and alert strings. • Click *Sens*ors to set maximum and minimum temperature values to generate alarms. • Click *Data Buffering* to configure global parameters for data buffering.
Network • IPv6 • Devices • Bonding • IPv4 Static Routes • IPv6 Static Routes • DNS • Hosts	• Click *IPv6* to enable or disable IPv6 protocol for the console server. • Click *Devices* to get the name and status of the device and to enable and configure the IP address for the eth0 and eth1 interfaces. • Click *Bonding* to enable or disable failover to eth1 if eth0 fails. • Click *IPv4 Static Routes or IPv6 Static Routes* to add a static route or modify the default route. • Click *DNS* to specify the console server hostname and primary and secondary domain name servers. • Click *Hosts* to add or delete host table entries.
Ports • Physical Ports • CAS Profile • Dial-in Profile • Power Profile	• Click *Physical Ports* to enable and configure the serial and AUX ports. • Click *CAS Profile* to configure the following for ports connected to device consoles and configured with the CAS Profile: data buffering and syslogging, communication protocols (Telnet/SSH), authenticating and other communications parameters, port names, power management while connected, auto discovery and auto answer settings. • Click *Dial-in Profile* to configure ports connected to modems and to configure secure dial-in settings such as OTP login, PPP connections and PPP/PAP authentication, and to configure callback and PPP passphrases for OTP users. • Click *Power Profile* to (optionally) configure the PDU type, poll interval and to change the login password for each type of PDU device to match any changes made on the PDU and to configure groups of outlets.
Pluggable Devices	Click *Pluggable Devices* to insert, configure and eject pluggable devices that are inserted into the PC card slots and/or connected in the USB port.
Security • Security Profile • Custom • DSView	• Click *Security Profile* to configure your security profile and other security parameters (PC Card Detection, RPC and whether port access is controlled by authorizations assigned to user groups). • Click *Custom* to create a custom security profile. • Click *DSView* to enable the appliance to be managed by DSView software or to clear the DSView certificate.
Authentication • Appliance Authentication • Authentication Servers	• Click *Appliance Authentication* to configure authentication for the console server. (Configure port authentication under *Ports - CAS Profile - Default Settings - General*.) • Click *Authentication Server* to specify the network authentication server.

Table 3.2: Web Manager Options for Administrators (Continued)

Heading	Description
Users • Local Accounts • Authorization	• Click *Local Accounts* to configure users, assign them to pre-defined user groups, configure expiration of the password and the account and configure other password rules (complexity and default expiration). • Click *Authorization* to add new user groups, to add users to user groups and to authorize the user group and its members for: port access, power management, data buffer management and appliance administration rights (which include the right to view appliance information, reboot, disconnect sessions, upgrade firmware, configure the appliance and users, backup and restore configuration, access the Linux shell and transfer files).
Syslog	Click *Syslog* to specify syslog destination(s), either local (appliance console or a root session) or remote (IPv4 or IPv6).
Event Notifications • Settings • Events	• Click *Settings* to specify the syslog facility number and settings for SNMP traps, SMS, email or DSView server message destinations. • Click *Events* to specify which events to detect for the console server and to select the destination for each event message type.
Firewall • IPv4 Filter Table • IPv6 Filter Table	Click *IPv4 Filter Table* or *IPv6 Filter Table* to configure the chains and rules for packet filtering.
IPSec(VPN)	Click *IPSec(VPN)* to configure IPSec (VPN) connections, authentication and NAT traversal.
SNMP • System • SNMP v1/v2/v3	• Click *System* to view or edit SysContact and SysLocation information. • Click *SNMP v1/v2/v3* to add, edit or delete an SNMP system management interface (SMI) type (combined v1/v2 or v3).
Date and Time • Date & Time • Time Zone	• Click *Date & Time* to set the date and time for the console server manually or configure an NTP server. • Click *Time Zone* either to select a pre-defined time zone or to define a custom time zone.
Boot Configuration	Click *Boot Configuration* to specify whether the console server boots from Flash memory or from the network and to configure the watchdog timer, a specific mode for the eth0 and eth1 interfaces and the console speed.
Online Help	Click *Online Help* to specify the URL for the online help after the online help files are downloaded and installed on a local web server.

Web Manager Overview for Regular Users

The following figure shows features of the Web Manager for a regular user.

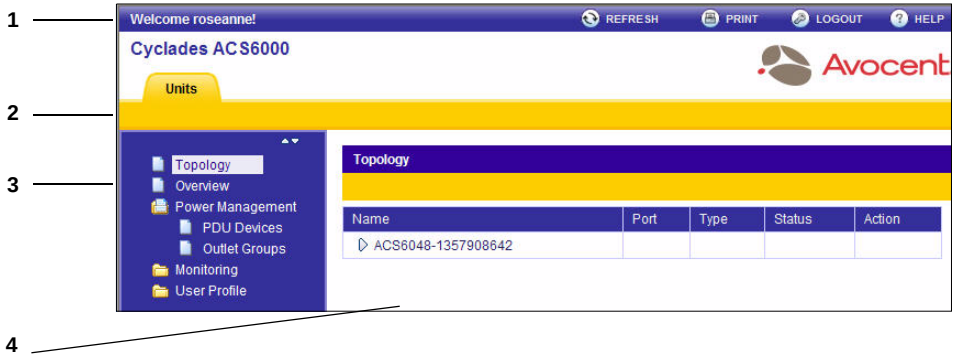

Figure 3.2: Web Manager Regular User Screen

Table 3.3: Web Manager Regular Users Screen Functional Areas

Number	Description
1	Top option bar. The name of the logged in user appears on the left side and Refresh, Print, Logout and Help buttons appear on the right.
2	Tab bar. Only the Units tab appears for the ACS 6000 Web Manager.
3	Side navigation bar. Menu options appear that are available for regular users.
4	Content area. Contents change based on the options selected in the side navigation bar.

The following table provides an overview of the options for regular users.

Table 3.4: Web Manager Options for Regular Users

Menu Option	Description
Topology	Select the down arrow next to the console server name to expand the list of ports you are authorized to access. • For port type Serial, select the name of the port and click in the Serial Viewer to connect to the device. • For port type Power (type shows the PDU model), select the name of the PDU to manage power on this PDU's outlets that you are authorized to manage.
Overview	• View the name and type of console server. Select *Tools* to Reboot, Upgrade Firmware, view Appliance Session, Save Configuration or Restore Configuration. • Click *Appliance Session* to access the console server.

Table 3.4: Web Manager Options for Regular Users (Continued)

Menu Option	Description
Power Management • Settings • Management • Outlet Groups	• Select *Settings* and select the name of a PDU. Rename, restore the factory defaults or configure the selected PDU. For more information, see Chapter 4. • Select *Management* and select the name of a PDU to reboot or manage the PDU and its outlets. For more information see Chapter 4. • Select *Outlet Groups* and select the name of an outlet group to manage.
Monitoring • Devices • IPv4 Routing Table • IPv6 Routing Table • Serial Status • Serial Statistics	• Select *Network - Devices* to view the current IP for Ethernet interfaces. • Select *Network - IPv4* or *IPv6 Routing* to view the current routing table. • Select *Serial Status* or *Serial Statistics* to view the status or statistics of the serial ports.
User Profile • Change Password	Change your own password.

CHAPTER 4

Using the Web Manager

Global Settings

Global settings for the ACS 6000 console server are for configuring operating parameters so that you can vary how long a session can be idle before it times out, enabling session logging and alerts, setting the minimum and maximum values for the console server's temperature sensors and configuring data buffering.

Sessions

To configure Sessions:

1. Click *Appliance Settings - Global Settings*. The Sessions window will be displayed.
2. Enter the desired period in seconds for how long the ACS 6000 console server can be idle before timing out and requiring another login.

NOTE: To set the console server so that there is no idle time-out, enter **zero**.

3. (Optional) Click *Enable appliance session data logging*. This will activate the Destination and Timestamp settings.
   a. Select the destination for appliance session data logs from the pull-down menu. Choices are Local, NFS, Syslog and DSView.
   b. Enable or disable timestamping the appliance session data logs.
4. (Optional) Click *Enable appliance session data logging alerts*. This will activate the Alert String fields.
5. Enter the desired alert strings (up to ten) in the fields provided.
6. Click *Save*.

Sensors

The ACS 6000 console server has sensors that monitor the internal temperature. You can specify an operating range for the console server that fits its environment.

CAUTION: Do not use values that exceed the maximum and minimum temperatures listed in *Techical Specifications* on page 69.

To configure the temperature sensors:

1. Click *Appliance Settings* - *Global Settings* - *Sensors*. The Sensors window will be displayed.
2. In the Maximum Temperature field, enter the temperature in degrees Celsius that, if exceeded, will generate an event notification.
3. In the Maximum Temperature Threshold field, enter the temperature threshold in degrees Celsius below the maximum temperature.

NOTE: When this threshold is reached, the sensor will generate an event notification that the console server has returned to normal operating temperature. This is also true for setting the Minimum Temperature Threshold.

4. In the Minimum Temperature field, enter the temperature in degrees Celsius that, if the console server's temperature falls below, will generate an event notification.
5. In the Minimum Temperature Threshold field, enter the temperature threshold in degrees Celsius above the minimum temperature.
6. Click *Save*.

Data buffering

To configure data buffer storage:

1. Select *Appliance Settings* - *Global Settings* - *Data Buffering*. The Data Buffering screen appears.
2. Enter the segment size in kilobytes and spare segments in the Local Data Buffering Settings section.
3. In the NFS Data Buffering Settings section, enter the following information: NFS Server, NFS Path, Segment Size (Kbytes) and Spare Segments.

NOTE: RPC service must be enabled in the Security Profile screen before configuring NFS Data Buffering Settings. NFS does not support IPv6.

4. Configure data buffer storage on a syslog server in the Syslog Data Buffering Settings section; select a facility number from the drop-down menu: Log Local 0, Log Local 1, Log Local 2, Log Local 3, Log Local 4 or Log Local 5.
5. Click *Save*.

Network Configuration

You can display and configure the network options for IPv6, devices, bonding, IPv4 and IPv6 static routes, DSN and hosts.

IPv6 options

To configure IPv6:

1. Select *Appliance Settings* - *Network* - *IPv6*. The IPv6 screen appears.
2. Click *Enable IPv6* to configure the console server for IPv6 protocol operation.

3. Click *Get DNS from DHCPv6* to obtain the Domain Name Server IP address from the DHCP server.
4. Click *Get Domain from DHCPv6* to obtain the domain name from the DHCP server.
5. Click *Save*. An alert window displays the notice, *Enabling or disabling IPv6 requires reboot to be effective*. Click *OK*. The login screen appears when the reboot is complete.

Devices options

An administrator can select, enable and configure the IP addresses assigned to the network interfaces and view the MAC address. Besides the two standard Ethernet interfaces, the list of network interfaces includes entries for any Ethernet PC cards that may be installed.

To configure a network device:

1. Select *Appliance Settings* - *Network* - *Devices*. The Devices screen appears with a list of network interfaces and their status (enabled or disabled).
2. Click the name of the network device to configure. The Settings screen appears.
3. Select the status (either *Enabled* or *Disabled*) from the drop-down menu.
4. Select one of the following IPv4 method options:
   - Select *DHCP* to have the IPv4 IP address set by the DHCP server.
   - Select *Static* to enter the IPv4 IP address and subnet mask manually.
   - Select *IPv4 address unconfigured* to disable IPv4.
5. Select one of the following IPv6 method options:
   - Select *Stateless* if the link is restricted to the local IP address.
   - Select *DHCPv6* to have the IPv6 IP address set by the DHCP server.
   - Select *Static* to enter the IPv6 IP address and prefix length manually.
   - Select *IPv6 address unconfigured* to disable IPv6.

NOTE: The MAC Address for the device will be displayed after this option.

NOTE: The following step is only active for mounted Ethernet PC cards.

6. Enter the following Wireless LAN information:
   a. Select *MyPrivateNet (ESSID)* to enter the unique identifier for the wireless access point.
   b. Select *Channel* to enter the communication channel with the access point.
   c. Select *Encrypted* to enable data encryption during transmission.
   d. Enter the key or password to decode incoming encrypted data.
7. Click *Save*, then click *Close*.

Bonding options

An administrator can enable and configure Ethernet bonding (also called failover). When bonding is enabled, the eth0 interface is used for access, and eth1 is used if the eth0 interface fails.

To enable bonding:

1. Select *Appliance Settings* - *Network* - *Bonding*. The Bonding screen is displayed.
2. Click *Bonding with eth0 as primary and eth1 as second mode of access* to enable network bonding.
3. Set the following values:
   - MII MON - The interval (in milliseconds) at which the active interface is checked to see if it is still communicating.
   - Up Delay - The time (in milliseconds) that the system waits before it makes the primary interface active after the primary interface is detected as up.
4. Click *Save*, then click *Close*.

IPv4 and IPv6 static routes options

To add static routes:

1. Select *Appliance Settings* - *Network* - *IPv4 Static Routes* or *IPv6 Static Routes.* Any existing static routes are listed with their Destination IP/Mask, Gateway, Interface and Metric values shown.
2. Click *Add*. The Add Static Route form is displayed.
3. Select *Default* to configure the default route.
   - Select either *Gateway* or *Interface* from the Route through drop-down menu.
   - Enter the IP address of the gateway or the name of the interface in the Gateway IP Or Interface field.
   - Enter the number of hops to the destination in the Metric field.

   -or-

   Select *Host IP Or Network* to enter custom settings for Destination IP/Mask.
   - Select either *Gateway* or *Interface* from the Route through drop-down menu.
   - Enter the required Destination IP/Mask with the syntax <destination IP>/<subnet mask>/<CIDR> in the Destination IP/Mask field.
   - Enter the IP address of the gateway or the name of the interface in the Gateway IP Or Interface field.
   - Enter the number of hops to the destination in the Metric field.
4. Click *Save*, then click Close.

To edit Static Routes:

1. Select *Appliance Settings - Network - IPv4 Static Routes* or *IPv6 Static Routes.* Any existing static routes are displayed with their Destination IP/Mask, Gateway, Interface and Metric values shown.
2. Click a route name under Destination IP/Mask. The Static Routes edit screen appears.
3. Edit any of the static route fields.
4. Click *Save*, then click *Close*.

DNS options

An administrator can select configure primary and secondary domain name system (DNS) servers.

To configure DNS:

1. Select *Appliance Settings - Network - DNS*. The DNS configuration page is displayed.
2. Enter the Primary DNS IP address.
3. Enter the Secondary DNS address.
4. Enter the Domain name, for example, **corp.avocent.com** (default).
5. Enter the hostname of the console server, for example, **ACS60<#ports> - <serial#>** (default).
6. Click *Save*.

Host options

An administrator can configure a table of host names, IP addresses and host aliases for the local network.

To add a host:

1. Select *Appliance Settings - Network - Hosts*. The Hosts page is displayed and contains the IP address, Hostname and Alias for all local hosts on the network.
2. Click *Add* to add new host. The Add Host Wizard page is displayed.
3. Enter the IP address, hostname and alias of the host you want to add.
4. Click *Save*, then click *Close*.

To edit a host:

1. Select *Appliance Settings - Network - Hosts*. The Hosts page is displayed and contains the IP address, Hostname and Alias for all local hosts on the network.
2. Click on the IP address of the hostname that you want to edit. The settings screen is displayed.

NOTE: The IP address of the selected host is shown but cannot be edited from this screen.

3. Enter a new hostname and alias, as applicable.
4. Click *Save*, then click *Close*.

Ports Configuration

Physical Ports

An administrator can enable and configure serial ports and auxiliary ports. On the serial ports screen, you can enable serial ports, specify the connection profile (CAS, Dial-In or Power) based on the type of connected device, optionally configure the port with a Cisco pinout if required and configure communication settings. On the auxiliary ports screen, you can enable the auxiliary port and configure it based on the type of connected device.

To enable or disable, change the pinout, select a Serial Profile and configure communication settings for one or more serial ports:

1. Select *Appliance Settings - Ports - Physical Ports - Serial Ports*. The *Serial Ports* screen appears.
2. Click the port number or the checkbox for each port you want to configure.
3. Click *Edit.*
4. Select *Enabled* or *Disabled* from the Status menu.
5. (Optional) To change the default pinout when a Cisco cable is connected to the selected port(s), select *Cisco* from the RJ-45 pinout menu.
6. For port(s) connected to the console of a target device, select *CAS* from the Serial Profile menu.
7. For port(s) connected to a modem, select *Dial-in* from the Serial Profile menu.
8. For port(s) connected to a PDU, select *Power* from the Serial Profile menu.
9. To reconfigure the connections settings to match the device(s) connected to the selected port(s), make the needed changes in the Communication Settings area of the screen.
10. Click *Save*, then click *Close*.

To enable and configure the auxiliary port for a connected modem or PDU:

If an internal modem is not already installed at the factory, you can connect an external modem or a PDU to the AUX/Modem port. Perform this procedure to configure the auxiliary port.

1. Select *Appliance Settings - Ports - Physical Ports - Auxiliary Ports*. The Auxiliary Ports form appears.
2. Click the port number. The Aux Ports Settings form appears.
3. Select *Enabled* or *Disabled* from the Status menu.
4. If the port is connected to a PDU, select *Power* from the Serial Profile menu.
5. If the port is connected to a modem, select Dial-in from the Serial Profile menu.
6. Click *Save*, then click *Close*.

CAS Profile

An administrator can configure settings for ports that are assigned to the CAS Profile. The CAS Profile option has four options shown in the following table.

Table 4.1: CAS Profile Options

Option	Description
Default Settings	Configure the connection protocol, authentication, auto discovery and other general settings
Devices	Configure one or more ports that have the CAS Profile
Auto Answer	Configure an auto answer input and output string
Auto Discovery	Configure settings and probe and match strings for ports that are configured for auto discovery. When auto discovery is enabled, if the hostname of the connected target device is successfully discovered, the hostname is shown instead of the serial port alias. This feature can save time for administrators because they do not need to enter port aliases manually. If the console server is being managed through DSView 3 software, hostname discovery can be configured through the DSView 3 software. Probe and match strings are used to probe the target device that is connected to the serial port and to extract a hostname from the answer that is received in response to the probe string. The result of each probe string is compared against all match strings. Each time no match is found, the next probe string is sent until there are no more probe strings. Default probe and answer strings used for auto discovery have a broad range and work in most cases. An administrator can configure site-specific probe strings and answer strings. Probe string configuration requires knowledge of C-style escape sequences. Match strings require knowledge of POSIX extended regular expressions. Hostnames longer than 31 characters are truncated when the hostname is assigned to the serial port alias.

To configure the protocol, authentication, auto discovery and other general settings for ports configured with CAS Profile:

1. Select *Appliance Settings - Ports - CAS Profile - Default Settings - General*. The General screen appears.

NOTE: Default settings to the CAS Profile are intended for new CAS ports. CAS ports with previously-configured default settings will not be affected unless they are edited in *Appliance Settings - Ports - Physical Ports* or by using the Multi-Edit Wizard in *Appliance Settings - Ports - CAS Profile - Devices*.

2. Select the desired protocol(s) (SSH, Telnet or Telnet/SSH) that can be used to access the serial port/target device from the Protocol pull-down menu.
3. Select the desired authentication type from the drop-down menu.

NOTE: Port authentication authenticates the user for one session.

4. To enable auto discovery, select the *Enable auto discovery* checkbox.
5. Perform other configurations on the screen as required.
6. Click *Save*.

To enable and configure alerts for ports configured with CAS Profile:

1. Select *Appliance Settings - Ports - CAS Profile - Default Settings - Alerts*. The Alerts screen appears.
2. To activate the alert string fields, click the *Enable alert strings* checkbox.
3. Enter up to ten alert strings in the fields provided.

NOTE: Special event notifications are generated when input data matches one of the alert strings.

4. Click *Save*.

To enable and configure data buffering for ports configured with CAS Profile:

1. Select *Appliance Settings - Ports - CAS Profile - Default Settings - Data Buffering*. The Data Buffering screen is displayed.
2. Choose *Enabled* or *Disabled* data buffering from the Status checkbox.
3. Chose the type of data buffering desired from the Type drop-down menu.
4. Choose *Enabled* or *Disabled* from the Time Stamp and Login/Logout Message drop-down menus.
5. Choose *Enabled* (store data always) or *Disabled* (store data when no CAS session is open) from the Serial Session Logging drop-down menu.
6. Click *Save*.

To edit the CAS Profile parameters for one or multiple ports:

1. Select *Appliance Settings - Ports - CAS Profile - Devices*. The Devices screen appears with a list of all ports that are configured with the CAS Profile. (Device is the name of the port and Name is the configured or discovered name of the connected device.)
2. To edit multiple ports, perform the following steps.
   a. Select the checkbox for each port individually or select the checkbox on the heading row to select all listed ports. The Multi-Edit button is activated.
   b. Click the *Multi-Edit* button. The Multi-Edit Wizard screen appears.
   c. Select the checkboxes to activate configuration options for *Configure CAS General Settings*, *Configure Alerts Strings* or *Configure Data Buffering Settings.*
   d. Select the checkboxes in each section to enable or disable the individual options.
   e. Click *Next*. The following screen will depend on the options selected in sub-step c above.
3. To edit one port, perform the following steps.
   a. Click the port name in the Device column. The General, Alerts, Data Buffering and Power options appear in the side navigation bar with the General option selected.

b. To enable the port, specify the connection protocol, configure authentication, enable auto discovery, configure the name and other general settings, then select the *General* option.

c. To enable and configure up to ten strings to generate event notifications if detected during a session, select the *Alerts* option.

d. To enable and configure data buffering, select the *Data Buffering* option, choose *Enable* from the Status menu, choose the type of data buffering from the Type menu, then choose *Enable* or *Disable* from the Include Time Stamp menu and the Include Log-in/Log-out Message menu. Choose *Enable* (store data always) or *Disable* (store data when no CAS session is open) from the User Session Logging menu.

e. To configure the port so that users can manage power while connected to the target device, select the *Power* option and choose *Select PDU* or *Custom*. See *To enable and configure a port connected to a server to allow power management by connected users:* on page 63 for details.

f. Click *Save*.

To configure the strings for probe/match used by auto discovery:

Perform this procedure to change the default settings or the probe or match strings used in auto discovery. For more details on the auto discovery feature and the expressions that are used to discover server names, see *Auto discovery* on page 5.

1. Select *Appliance Settings - Ports - CAS Profile - Auto Discovery.* The Settings, Probe Strings and Match Strings options appear in the side navigation bar.
2. To change the default auto discovery time-out or probe time-out, perform the following steps.
   a. Select *Settings*. The Settings screen appears.
   b. Enter a new value in the Auto Discovery Timeout field.
   c. Enter a new value in the Probe Timeout field.
   d. Select a speed from the Default Speed on Auto Discovery Failure drop-down menu and Probe Speed List.
   e. Click *Save*.
3. To add a new probe or match string or delete an existing string, perform the following steps.
   a. Select *Probe Strings* or *Match Strings*.
   b. To add a string, click *Add*, enter a new string in the New Probe String or New Match String field and click *Save*.
   c. To delete a string, select the checkbox for the string and click *Delete*.
   d. Click *Save*.

To configure the input/output strings used by auto answer:

1. Select *Appliance Settings - Ports - CAS Profile - Auto Answer.* The Auto Answer screen appears.

2. To add an auto answer input and output string, click *Add*. Enter a new string in the Input String or Output String field and click *Save*.

   -or-

   To delete a pair of auto answer strings, select the checkbox. Click *Delete*, then click *Save*.

Dial-In Profile

An administrator can configure settings for ports connected to modems and configured with the Dial-In Profile. The administrator can also configure secure dial-in settings such as OTP login, PPP connections, PPP/PAP authentication, callback and OTP users for PPP connections.

NOTE: If pluggable devices are being used for dial-out, dial-in should be disabled.

To configure a device name, speed, chat string and PPP parameters for ports with Dial-In Profile:

1. Select *Appliance Settings - Ports - Dial-In Profile - Devices*. The Devices Screen appears with a list of devices configured with the Dial-In Profile.
2. Click the name of a device and perform the following configuration as required.
3. Enter a device name in the Device Name field.
4. Enter a speed (used by mgetty to configure the serial device).
5. Enter a chat initialization string in the Init Chat field.
6. Select either *IPv4* or *IPv6* and enter local and remote PPP IP addresses.
7. Select the radio button to configure the PPP authentication protocol (None, PAP, CHAP, EAP).
8. Enter a CHAP interval, max-challenge and restart.
9. Enter a PPP idle timeout.
10. Click *Save*.
11. Click *Close*.

To configure secure dial-in settings for ports with Dial-In Profile:

1. Select *Appliance Settings - Ports - Dial-In Profile - Settings*.
2. To enable logging in to the console server through the modem and select a condition for which logging in is allowed, perform the following steps.
   a. To allow callback connections only, select *Callback*.
   b. To allow any connection, select *Enable*.
3. To enable OTP authentication, select *Enable* from the OTP Login Authentication menu.
4. To enable and select a condition for PPP connections, perform the following steps.
   a. To allow PPP callback connections only, select *Callback*.
   b. To allow any connection, select *Enable*.

5. When the PAP authentication protocol is configured for the port, select the authentication type from the PPP/PAP Authentication menu.
6. Click *Save*.

To configure callback users and phone numbers for ports with Dial-In Profile:

1. Select *Appliance Settings - Ports - Dial-In Profile - Secure Dial-In - Callback Users*. The Callback Users screen appears.
2. Click *Add*.
3. Enter the name used to perform the callback in the Callback Users field.
4. Enter the phone number to call in the Callback Number field.
5. Click *Save*.

To configure PPP OTP users for ports with Dial-In Profile:

1. Select *Appliance Settings - Ports - Dial-In Profile - Secure Dial-In - PPP OTP Users*. The PPP OTP Users screen appears.
2. Click *Add*.
3. Enter the username in the PPP OTP User field.
4. Enter the passphrase in the Passphrase and Confirm Passphrase fields.
5. Click *Save*.

NOTE: This PPP OPT user will establish PPP connection after being successfully authenticated.

Power Profile

An administrator can configure ports that are connected to PDUs and that are configured with the Power Profile. The Power Profile node has the three sub-nodes:

- Login: If the login password is changed on a PDU of a certain type (Cyclades, SPC or ServerTech), the administrator can optionally change the login password on this screen. This password is used by the console server to communicate with the PDU. (Only one password is supported for all PDUs of the same type.)
- Devices: Configure the PDU type, speed auto detection and the polling rate.
- Outlet Groups: Configure groups of outlets.

To configure a changed PDU password for ports with Power Profile:

1. Select *Appliance Settings - Ports - Power Profile - Login*. The Login Screen appears.
2. To change the password for an Avocent or Cyclades PDU, an Avocent SPC PDU or a ServerTechnology PDU, enter the password in the appropriately labeled section.
3. Click *Save*.

To configure devices with Power Profile:

1. Select *Appliance Settings - Ports - Power Profile - Devices*. The Devices screen appears.
2. Select a device by clicking on a device name.
3. Under Power Settings, select *Auto, Avocent-Cyclades, SPC,* or *ServerTech* from the PDU Type drop-down menu.
4. Enable or disable the *Enable speed auto detection* checkbox.
5. Enter the correct number of seconds in the Polling Rate field.
6. Click *Save*.

To configure an outlet group for ports with Power Profile:

1. Select *Appliance Settings - Ports - Power Profile- Outlet Group*. The Outlet Group Add Group screen appears.
2. Click *Add*. Enter the outlet group name in the Group Name field.
3. Click *Save*. The outlet group appears in the list on the Outlet Group screen.
4. Click the name of the outlet group. The Outlet Settings field appears.
5. Click *Add*.
6. To configure outlets that are on connected and configured PDU(s), perform the following steps.
   a. Select the *Select PDU* radio button.
   b. Select the PDU from the Connected PDUs menu.
   c. Enter the numbers of the outlets in the Outlet field.
7. To configure outlets from an unconnected PDU (for use after future connection), perform the following steps.
   a. Select the *Custom* radio button.
   b. Enter a name that will be assigned to the PDU in the PDU ID field.
   c. Enter the numbers of the outlets in the Outlet field.
8. Click *Save*.
9. Click *Close*.

NOTE: A user can manage outlet groups only if the user belongs to a group that is an authorized manager of the outlets in the group.

Pluggable Devices

NOTE: Before configuring pluggable devices, you must enable PC Card and USB Device Detection in the Appliance Settings - Security - Security Profile screen.

To manage pluggable devices:

1. Select *Application Settings - Pluggable Devices*. The Pluggable Devices screen appears.
2. Select the checkbox next to the pluggable device you wish to configure, or select the checkbox above the list of pluggable devices to select them all.
3. Click *Insert All*, *Eject* or *Rename*.

To view and change pluggable device information:

1. Select *Application Settings - Pluggable Devices*. The Pluggable Devices screen appears.
2. Select a pluggable device name.
3. If the pluggable device type is Network, the Network/Device section will be visible to allow the configuration of the network parameters.

   -or-

   If the pluggable device type is Modem (V.92 or wireless), the Dial-in/Device section will be visible to allow the configuration of the dial-in parameters.

Security Configuration

Security profiles determine which network services are enabled on the console server.

During initial configuration, the console server administrator must configure security parameters to conform with the site security policy. The security parameters can be modified later. The following security features can be configured either in the Web Manager or the CLI:

- Enable or disable automatic detection of PC cards and USB devices
- Enable or disable RPC
- Either allow all users to access enabled ports or allow the configuration of group authorizations to restrict access
- Select a security profile, which defines:
  - Which services (FTP, ICMP, IPSec and Telnet) are enabled
  - SSH and HTTP/HTTPS access

The administrator can select either a preconfigured security profile or create a custom profile.

All the services and the SSH and HTTP/HTTPS configuration options that are enabled and disabled for each security profile are shown in the First Time Configuration window, the Appliance Settings - Security - Security Profile window and the CLI show command list.

The following table shows the configuration of each predefined security profile.

Table 4.2: Security Profile Services, SSH, and HTTP/HTTPS Definitions

Service or Other Security Parameter	Secure	Moderate	Open
Telnet			X
SSH v1		X	X
SSH v2	X	X	X
Allow SSH root access		X	X
HTTP		X	X
HTTPS	X	X	X
HTTPS - SSL v2		X	X
HTTPS - SSL v3 (also enables TLSv1)	X	X	X
HTTP redirection to HTTPS		X	
SNMP			X
ICMP		X	X
FTP	(None. Can be set only in custom.)		
IPSec	(None. Can be set only in custom.)		

To configure the security profile:

1. Select *Application Settings* - *Security* - *Security Profile*. The Security Profile screen appears.
2. Enable or disable the *PC Card and USB Device Detection* checkbox.
3. Under the Enabled Services section, enable or disable the *RCP* checkbox.
4. Under the Serial Devices heading, enable or disable the *Port access is controlled by authorizations assigned to user groups* checkbox.
5. Select *Custom*, *Moderate*, *Open* or *Secure* from the Security Profile drop-down menu.
6. Click *Save*.

If you select the *Custom* security profile in step 5, you can configure custom security settings.

To configure custom security settings:

1. Select *Application Settings* - *Security* - *Custom*. The Custom screen appears.
2. Enable any of the following services: *Telnet*, *FTP*, *SNMP*, *IPSec* and *ICMP.*
3. Configure the SSH settings by selecting a version from the drop-down menu, enabling or disabling the *Allow root access* checkbox, and entering the TCP port.

4. Configure the WEB settings.
    a. Select the *HTTP* checkbox to enable HTTP, and enter the HTTP port number.
    b. Select the *HTTPS* checkbox to enable HTTPS. Select an HTTPS SSL version from the drop-down menu, enter the HTTPS port number and select to enable the *Redirect HTTP/HTTPS* checkbox.
5. Click *Save*.

You can also configure DSView 3 software security settings. When the console server is managed by the DSView 3 software, the DSView 3 server will supply the certificate to the console server. Under normal conditions, the DSView 3 software will manage the certificate to clear and replace it with a new certificate as needed. If communication with the DSView 3 software is lost, the DSView server will be unable to clear the certificate and the console server cannot be used. Click the *Clear DSView Certificate* button to configure the console server in Trust All mode.

To configure DSView 3 security settings:

1. Select *Application Settings - Security - DSView.* The DSView screen appears.
2. Click the *Allow appliance to be managed by DSView* checkbox to manage the console server by DSView 3 management software.
3. Click *Save*.

Authentication

Authentication can be performed locally, with OTP, or on a remote Kerberos, LDAP, NIS, Radius or TACACS+ authentication server. If the ACS 6000 console server is managed by a DSView 3 server, DSView authentication is also supported. The console server also supports remote group authorizations for the LDAP, Radius and TACACS+ authentication methods.

Fallback mechanisms of the following types are available:

Local authentication can be tried first, followed by remote, if the local authentication fails (Local/Remote_Method)

-or-

Remote authentication may be tried first, followed by local (Remote_Method/Local)

-or-

Local authentication may be tried only if a remote authentication server is down (Remote_MethodDownLocal).

An administrator can configure authentication using the CLI utility and the Web Manager. The default authentication method for the console server and the serial ports is Local. Any authentication method that is configured for the console server or the ports is used for authentication of any user who attempts to log in through Telnet, SSH or the Web Manager.

You can either accept the default or configure another authentication method.

Appliance authentication

The ACS 6000 console server authenticates for the console server and for the ports, either in groups or individually. Refer to *Physical Ports* on page 32 for more information on configuring authentication for individual ports.

NOTE: It is advised when using group authorization that you use the same authorization for both the console server and all serial ports, or use Single Sign-on Authentication to facilitate group authorization.

When Single Sign-on Authentication is disabled, the console server uses the individual port configurations. Users must use their password each time they access an individual port. If enabled, Single Sign-on Authentication will use the authentication server you choose from the pull-down menu for all ports and no further authentication will be needed when accessing the port after that.

NOTE: Selecting *unconfigured* from the pull-down menu will allow the ports to continue to use individual authentication servers, and will require your password the first time you access any port. After that, the port will not require password authentication if Single Sign-on Authentication is enabled.

To set authentication for the console server:

1. Click on *Appliance Settings - Authentication - Appliance Authentication* to open the Appliance Authentication screen.
2. Select the desired authentication server from the Authentication Type drop-down menu.
3. Select *Enable single sign-on* to enable single sign-on authentication, and select the desired authentication server from the Authentication Type drop-down menu.
4. Click *Save*.

Authentication servers

When using an authentication server, you must configure its IP address and in most cases other parameters before it can be used. The following authentication servers require configuration: RADIUS, TACACS+, LDAP(S)|AD, Kerberos, NIS and DSView servers.

To configure a RADIUS authentication server:

1. Select *Appliance Settings - Authentication - Authentication Servers - RADIUS*. The RADIUS Servers screen is displayed.
2. Enter the IP addresses of the First Authentication Server and First Accounting Server.
3. If used, enter the IP addresses for the Second Authentication Server and Second Accounting Server.
4. Enter your secret word or passphrase in the Secret field (applies to both first and second authentication and accounting servers), then re-enter the secret word or passphrase in the Confirm Secret field.
5. Enter the desired number of seconds for server time-out in the Timeout field.
6. Enter the desired number of retries in the Retries field.

7. If you select the *Enable Service-Type attribute to specify the authorization group* checkbox, enter the authorization group name for each of the following Service Types: Login, Framed, Callback Login, Callback Framed, Outbound and Administrative.
8. Click *Save*.

To configure a TACACS+ authentication server:

1. Select *Appliance Settings - Authentication - Authentication Servers - TACACS+* to display the TACACS+ Servers screen.
2. Enter the IP addresses for the First Authentication Server and First Accounting Server.
3. If used, enter the IP addresses of the Second Authentication Server and Second Accounting Server.
4. Select the desired service (PPP or raccess) from the Service drop-down menu.
5. Enter your secret word or passphrase in the Secret field (applies to both first and second authentication and accounting servers), then re-enter the secret word or passphrase in the Confirm Secret field.
6. Enter the desired number of seconds for server time-out in the Timeout field.
7. Enter the desired number of retries in the Retries field.
8. If you select the *Enable User-Level attribute to specify the authorization group* checkbox, enter the authorization group name for up to 15 User-Levels.
9. Click *Save*.

To configure an LDAP(S)|AD authentication server:

1. Select *Appliance Settings - Authentication - Authentication Servers - LDAP(S)|AD* to display the LDAP(S)|AD Server screen.
2. Enter the IP address of the server.
3. Enter the Base.
4. At the Secure drop-down menu, select *Off*, *On* or *Start_TLS*.
5. Enter the Database User Name.
6. Enter your Database Password, then re-type the database password in the Confirm Password field.
7. Enter your desired Login Attributes.
8. Click *Save*.

To configure a Kerberos authentication server:

1. Select *Appliance Settings - Authentication - Authentication Servers - Kerberos* to display the Kerberos Server screen.
2. Enter the IP address (Realm) of the server.
3. Enter the Realm Domain Name (example: **avocent.com**).

4. Enter the Domain Name (example: **avocent.com**).
5. Click *Save*.

To configure an NIS authentication server:

1. Select *Appliance Settings - Authentication - Authentication Servers - NIS* to display the NIS Server screen.
2. Enter the NIS Domain Name of the server (example: **corp.avocent.com**).
3. Enter the NIS Server Address or **broadcast** (default is broadcast).
4. Click *Save*.

To configure a DSView authentication server:

1. Select *Appliance Settings - Authentication - Authentication Servers - DSView* to display the Authentication Servers screen is displayed.
2. Enter IP Address 1 - 4 for the DSView servers in the relevant fields.
3. Click *Save*.

Users Accounts and User Groups

Access to ports can be optionally restricted, based on authorizations that an administrator can assign to custom user groups. Groups can also be authorized to manage power while connected to devices. By default, the ACS 6000 console server has two default users (admin and root) and three pre-defined user groups: admin, appliance-admin and user.

A user account must be defined for each user on the console server or on an authentication server. The admin and root users have accounts by default, and either administrator can add and configure other user accounts. Each local user account is assigned to one or more of the user groups.

CAUTION: Change the default passwords for root and admin before you put the console server into operation.

Users accounts

The admin and root are equivalent users but named differently to address users familiar with either Avocent equipment or the Cyclades families of ACS console servers. Regular users can be granted permissions by administrators at any time. The ACS console server has three user account types:

- admin: Performs the initial network configuration. The factory default password for admin is avocent. The admin user is a member of the admin group. The admin user can configure the console server and ports. Administrators also configure user and group authorizations.
- root: Has the same permissions as the admin user. The factory default password for root is linux. In the ACS 6000 console server, the root user is a member of the admin group.
- Administrator-added regular users: Have limited access to the Web Manager features based on the group(s) to which they are assigned. Users can change their own passwords. By default, all users have access to all enabled ports.

To add new users:

1. Click *Appliance Settings - Users - Local Accounts - User Names*. The User Names screen is displayed with a list of all users.
2. Click *Add.* The Local User Information screen is displayed.
3. Enter the new username.
4. Enter a password, then confirm the password.
5. Select or deselect *User must change password at the next login* checkbox.
6. If you wish to add the user to an available user group, select the user group name in the box on the left and click *Add* (user is the default group). You can remove a user group from the box at right by selecting it and clicking *Remove*.
7. Enter the desired parameters for Password Expiration.
   - Min Days: Enter the minimum number of days allowed between password changes. Password changes attempted sooner will be rejected. If not specified, -1 is the default which disables the restriction.
   - Max Days: Enter the maximum number of days a password is valid. After this period, the password change will be forced. If not specified, -1 is the default which disables the restriction.
   - Warning Days: Enter the number of days that a warning is issued to the user prior to expiration. Entering **0** will cause the warning to be issued on the expiration day. A negative value or no value means that no warning will be issued.
8. Enter the desired Account Expiration date (**YYYY-MM-DD**).
9. Click *Save*.

To configure password rules:

1. Click *Appliance Settings - Users - Local Accounts - Password Rules*. The Password Rules screen is displayed.
2. If password enforcement is desired (recommended), make sure that *Check Password Complexity* is selected.
3. If Password Enforcement is enabled, enter the desired values for password complexity.
4. Enter the desired values for Default Expiration.
5. Click *Save*.

User groups

User groups are given access and authorizations either by default or as assigned by an administrator. Administrators can alter the permissions and access rights of users belonging to the appliance-admin or user groups or create additional groups with custom permissions and access rights. Administrators can add, delete or modify permissions and access rights for users from any group at any time.

If an administrator configures the console server to restrict user access to ports, the administrator can assign users to groups that are authorized for port access. The administrator can also authorize groups for power management and data buffer management.

This document and the software refer to users whose accounts are configured on remote authentication servers as remote users. Remote users do not need local accounts.

Radius, TACACS+ and LDAP authentication services allow group configuration. If a remote user is configured as a member of a remote group, the authentication server provides the group name to the console server when it authenticates the user. A local group by the same name must also be configured on the console server. If an authentication server authenticates a remote user but does not return a group, then the remote user is assigned to the group called user by default.

admin group

Members of the admin group have full administrative privileges that cannot be changed, the same access and configuration authorizations as the default admin user. Administrators can configure ports, add users and manage power devices connected to the console server.

NOTE: The only configuration allowed for the admin group is adding or deleting members.

To view admin Appliance Access Rights:

1. Click on *Appliance Settings - Users - Authorization - Groups*. The Group Names screen is displayed, showing the three default user groups along with any groups that have been created.
2. Click on *admin* under the Group Name heading. The content area will display the Members screen listing all members belonging to the admin group (default members are admin and root users).

NOTE: When any Group Name is selected, both the content area and side navigation bar change. The side navigation bar will display specific menu options for Members and Access Rights (which include Serial, Power and Appliance rights).

3. In the side navigation bar, click *Access Rights - Serial* or *Access Rights - Power* to access the screens displaying the fixed access rights and permissions for members of the admin group pertaining to serial ports and power management.

NOTE: The Serial and Power screens are read-only and cannot be changed.

4. In the side navigation bar, click on *Access Rights - Appliance*. The Appliance Access Rights screen appears and lists all access rights available to a member belonging to the admin group. All appliance access rights are shown enabled (checked). Available appliance access rights are:
    - View Appliance Information
    - Disconnect Sessions and Reboot Appliance
    - Appliance Flash Upgrade and Reboot Appliance
    - Configure Appliance Settings

- Configure User Accounts
- Backup/Restore Configuration
- Shell Access
- Transfer Files

NOTE: The Appliance Access Rights screen for the admin and appliance-admin user groups is read-only and cannot be changed. Unchecking any box and clicking *Save* will result in an error message. The console server will maintain all rights selected.

appliance-admin group

Members of the appliance-admin group have access restricted to tasks for managing only the appliance. Appliance-admin user group members have no access to the serial ports or power management options, and share all of the appliance access rights as admin except for Configure User Accounts and Shell Access, which are permanently disabled for this group.

user group

Members of the user group have access to target devices unless they are restricted by an administrator but have no access rights for the console server. Administrators can add appliance access rights and permissions, or can add users to custom user groups to add permissions and access rights as needed. By default, all selections on the Appliance Access Rights screen will be disabled.

NOTE: The Appliance Access Rights screen for the user group can be changed at any time by an administrator. This will change the access rights for all members of the console server's user group.

Managing user groups

Administrators and members of the admin group can create custom user groups that can contain users from any default user group or from other custom user groups. Permissions and access for custom user groups will be determined by the top-level user group permissions.

To create a custom user group:

1. Log into the Web Manager as admin.
2. Click *Appliance Settings* - *Users* - *Authorization* - *Groups*. The Groups screen is displayed and contains a list of the three default user groups and any additional custom user groups that have been created.
3. Click *Add* in the content area. The New Authorization Group screen is displayed.
4. Enter the name of the new user group you are creating.
5. Click *Save*.

To add or remove members for a new custom user group:

1. Log into the Web Manager as admin.

2. Click *Appliance Settings - Users - Authorization - Groups* in the navigation bar. The Groups screen is displayed.
3. Click the new user group name. The Members screen is displayed (Members column is empty).
4. Click *Assign*. The Members Assignment screen is displayed showing a list of available users in the left box and an empty box at right.
5. Move users from the Available Users box on the left to the box on the right by double-clicking on the username or group name, or by selecting the name and clicking the *Add* button. You can remove any names from the box on the right by double-clicking on the name or by selecting the name and clicking the *Remove* button.
6. If you want to add remote users to the new user group (these must be valid names in your remote authentication server), add them in the New Remote Users field.
7. Click *Save*.

To assign access to serial ports for a new custom user group:

1. Log into the Web Manager as admin.
2. Click *Appliance Settings - Users - Authorization - Groups* in the navigation bar. The Groups screen is displayed.
3. Click the new user group name. The Members screen is displayed.
4. In the navigation bar, click *Access Rights*. The Serial screen is displayed (Serial column will be empty.)
5. In the content area, click *Assign*. The Target Assignment screen is displayed.
6. Move serial target devices from the Available Target box on the left to the box on the right by double-clicking on the serial target name, or by selecting the target and clicking the *Add* button. You can remove any targets from the box on the right by double-clicking on the target or by selecting the target and clicking the *Remove* button.
7. Click *Save*. The Serial screen will appear and show the serial target devices you have authorized for use by the new custom user group with R/W session permission.
8. Edit the access rights by selecting the checkbox next to one or more of the target names in the list as needed and click *Edit*. The Target Access Rights screen is displayed with the access rights. Select the desired access rights and click *Save*.

To assign PDU access for a new custom user group:

NOTE: Assigning PDU access to a user group gives them full access to all power management functions for that PDU. If you want the user group to have access to outlets only, use the procedure *To assign outlet access for a new custom user group:* on page 49.

1. Log into the Web Manager as admin.
2. Click on *Appliance Settings - Users - Authorization - Groups* in the navigation bar. The Groups screen is displayed.

3. Click on the new user group name. The Members screen is displayed.
4. In the navigation bar, click *Access Rights*. The Serial screen is displayed.
5. In the navigation bar, click *Power*. The PDU screen is displayed.
6. In the content area, click *Assign*. The PDU Assignment screen is displayed with the list of available PDUs in the left box.
7. Move PDU devices from the Available PDU box on the left to the box on the right by double-clicking on the PDU name, or by selecting the PDU and clicking the *Add* button. You can remove any PDUs from the box on the right by double-clicking on the PDU name or by selecting the PDU and clicking the *Remove* button.
8. You can specify a custom PDU ID in the field at bottom and assign it a custom PDU ID.

NOTE: The custom PDU ID is for assigning user group authorization to manage PDUs that have not yet been connected to the console server.

9. Click *Save*.

To assign outlet access for a new custom user group:

NOTE: Assigning outlet access to user groups allows group members to turn outlets on or off, and on PDUs with locking and power cycle capabilities, enable those functions.

1. Log into the Web Manager as admin.
2. Click *Appliance Settings - Users - Authorization - Groups* in the navigation bar. The Groups screen is displayed.
3. Click on the new user group name. The Members screen is displayed.
4. In the navigation bar, click *Access Rights*. The Serial screen is displayed.
5. In the navigation bar, click *Power*. The PDU screen is displayed.
6. In the navigation bar, click *Outlets*. The Outlets screen is displayed.
7. Click *Add*. The Add Outlet screen is displayed.
8. For connected PDUs, click the *Select PDU* button to activate the Connected PDUs and Outlets fields.
9. Select *Connected PDU* from the pull-down menu.
10. Enter the outlets assigned to the user group.

NOTE: Outlets can be specified individually, for example 1,3,6,8 separated by commas, or as a range, for example 1-4, or a combination of both, for example 1-4,6,8 (assigns access to outlets 1, 2, 3, 4, 6 and 8).

11. If a custom PDU ID has been created for future use, and you want to pre-assign outlets, click the *Custom* button and enter the custom PDU ID name and specify the outlets.
12. Click *Save*.

To assign appliance access rights for custom user groups:

1. Log into the Web Manager as admin.

2. Click *Appliance Settings - Users - Authorization - Groups* in the navigation bar. The Groups screen is displayed.
3. Click on the new user group name. The Members screen is displayed.
4. In the navigation bar, click *Access Rights*. The Serial screen is displayed.
5. In the navigation bar, click *Appliance*. The Appliance Access Rights screen is displayed.
6. Select the desired appliance access rights and click *Save*.

Syslog

You can configure the destination of the system logged (syslog) messages. The syslog destination can be one or more remote syslog servers, the appliance console or the root session (sends syslog messages to all sessions where the user is root).

NOTE: If you configure both appliance console and root session as destination and then log into the console as root, the syslog will show two messages in the console, one for destination appliance console and the other for destination root session.

To configure syslog:

1. Click on *Appliance Settings - Syslog*. The Syslog screen is displayed.
2. Select *Remote Server - IPv4* to enable syslog messages to be sent to one or more remote IPv4 syslog servers, and enter the *IPv4 Address or Hostname*. Separate multiple server addresses by commas.

   -or-

   Select *Remote Server - IPv6* to enable syslog messages to be sent to one or more remote IPv6 syslog servers, and enter the *IPv6 Address or Hostname*. Separate multiple server address by commas.
3. Select *Appliance Console* to send messages to the ACS 6000 console server's console.
4. Select *Root Session* to send syslog messages to all sessions where you are logged in as root user.
5. Click *Save*.

Event Notifications

The ACS 6000 console server will generate notifications for a wide variety of events. You can configure the console server to direct or store those event notifications to various destinations for immediate use or for analysis later. There are two screens available under Appliance Settings - Event Notifications: Settings and Events.

Event Notifications - Settings

The following table describes the screens and the actions you need to take to configure Event Notifications.

Table 4.3: Event Notifications - Settings Screen Description

Name	Description
Syslog: Facility	There are six choices available from the pull-down menu: LogLocal 0, LogLocal 1, LogLocal 2, LogLocal 3, LogLocal 4 or LogLocal 5.
SNMP Trap: Community	Enter the name of the community defined in one or more of the SNMP trap servers. **NOTE:** The community name must be the same for all SNMP trap servers.
SNMP Trap: Server 1 - 5	Enter the IP address of up to five SNMP trap servers in the fields provided.
SMS: Server	Enter the IP address of the SMS server.
SMS: Port	Enter the port number for use with the SMS server.
SMS: Pager Number	Enter the pager number to which the SMS event will be sent.
Email: Server	Enter the IP address of the email server where event notifications will be sent.
Email: Port	Enter the port number of the email server to be used for event notifications.
Email: Destination Email	Enter the email address of the event notifications recipient.
DSView: DSView 3 Server	Enter the IP address of the DSView 3 server where event notifications will be sent.
DSView: Syslog Server Port	Enter the syslog server port number for the DSView 3 server.
DSView: SSH Server Port	Enter the SSH server port number for the DSView 3 server.
DSView: SSH User Name	Enter the SSH username for the DSView 3 server.
DSView: SSH Idle Timeout (sec)	Enter the SSH idle timeout (in seconds) for the DSView 3 server, used to close the SSH tunnel if it is idle.
DSView: SSH Start Threshold (bytes)	Enter the SSH start threshold in bytes for the DSView 3 server, used to set up the parameters if the DSView 3 server does not respond.
DSView: SSH Tunnel Buffer Size (bytes)	Enter the SSH tunnel buffer size in bytes for the DSView 3 server, used to set up the parameters if the DSView 3 server does not respond.
DSView: Buffer Full First Warning (bytes)	Enter the number of bytes allowed by the DSView 3 buffer before the first buffer full event notification is sent (when DSView 3 server does not respond).
DSView: Buffer Full Second Warning (bytes)	Enter the number of bytes allowed by the DSView 3 buffer before the second buffer full event notification is sent (when DSView 3 server does not respond).

Table 4.3: Event Notifications - Settings Screen Description (Continued)

Name	Description
DSView: Buffer Full Third Warning (bytes)	Enter the number of bytes allowed by the DSView 3 buffer before the third buffer full event notification is sent (when DSView 3 server does not respond).

Event Notifications - Events

The Events screen lists 55 preconfigured ACS 6000 console server events, each of which can be configured for SNMP Traps, Syslog, DSView, Email and SMS.

To configure Events:

1. Click on *Appliance Settings - Event Notifications - Events*. The Events screen is displayed.
2. Locate the events for which you want notification sent and select the checkbox or checkboxes next to the event number(s).
3. Click *Edit*. The Events Settings screen is displayed. The selected event numbers are shown at the top.

NOTE: When selecting more than one event number to edit, changes made on this screen will be applied to all of the selected event types when they are saved.

4. Select the types of notifications you want for the chosen events by clicking in one or more of the *Configure for* checkboxes. This will activate the associated Send checkbox.
5. If you want an event notification sent for any configured event destination type, click in its associated *Send* checkbox.
6. Click *Save*. The Events page is displayed with an X in the column below the destination type if the Send box was checked on the Events Settings screen.

Firewall Configuration

Administrators can configure the ACS 6000 console server to act as a firewall. By default, three built-in chains accept all INPUT, FORWARD and OUTPUT packets. Select the *Add, Delete* or *Change Policy* buttons to add a user chain, delete user added chains and to change the built-in chains policy. Default chains can have their policy changed (Change Policy) to accept or drop, but cannot be deleted. Clicking on the *Chain Name* allows you to configure rules for chains.

Firewall configuration is available by clicking on *Appliance Settings - Firewall*. Separate but identical configuration screens are available from either the *IPv4 Filter Table* or *IPv6 Filter Table* menu options.

Only the policy can be edited for a default chain; default chain policy options are ACCEPT and DROP.

NOTE: If a default chain is selected and *Delete* is clicked, an error message appears. No user action is required.

When a chain is added, only a named entry for the chain is created. One or more rules must be configured for a chain after it is added.

Configuring the firewall

For each rule, an action (either *ACCEPT*, *DROP*, *RETURN*, *LOG* or *REJECT*) must be selected from the Target pull-down menu. The selected action is performed on an IP packet that matches all the criteria specified in the rule.

If *LOG* is selected from the Target pull-down menu, the administrator can configure a Log Level and a Log Prefix and can select whether the TCP sequence, TCP options and IP options are logged in the Log Options Section.

If *REJECT* is selected from the Target pull-down menu, the administrator can select an option from the Reject with pull-down menu; the packet is dropped and a reply packet of the selected type is sent.

Protocol options

Different fields are activated for each option in the Protocol pull-down menu.

If *Numeric* is selected from the Protocol menu, enter a Protocol Number in the text field.

If *TCP* is selected from the Protocol menu, a TCP Options Section is activated for entering source and destination ports and TCP flags.

If *UDP* is selected from the Protocol menu, the UDP section is activated for entering source and destination ports.

Table 4.4: Firewall Configuration - TCP and UDP Options Fields

Field/Menu Option	Definition
Source Port - or - Destination Port - and - to	A single IP address or a range of IP addresses.
TCP Flags	[TCP only] SYN (synchronize), ACK (acknowledge), FIN (finish), RST (reset), URG (urgent) and PSH (push). The conditions in the pull-down menu for each flag are: Any, Set or Unset.

If *ICMP* is selected from the Protocol menu, the ICMP Type pull-down menu is activated.

If an administrator enters the Ethernet interface (eth0 or eth1) in the input or output interface fields and selects an option (*2nd and further packets*, *All packets and fragments* or *Unfragmented packets and 1st packets*) from the Fragments pull-down menu, the target action is performed on packets from or to the specified interface if they meet the criteria in the selected Fragments menu option.

To add a chain:

1. Select *Appliance Settings - Firewall*.
2. Select either *IPv4 Filter Table* or *IPv6 Filter Table* as needed. The Filter Table screen is displayed.
3. Click *Add*. The Add Chain screen is displayed.
4. Enter the name of the chain to be added in the Chain field.
5. Click *Save*.

NOTE: Spaces are not allowed in the chain name.

6. Add one or more rules to complete the chain configuration.

To change the policy for a default chain:

Perform this procedure if you wish to change the policy for a default chain.

NOTE: User-defined chains cannot be edited. To rename a user-added chain, delete it and create a new one.

1. Select *Appliance Settings - Firewall*.
2. Select either *IPv4 Filter Table* or *IPv6 Filter Table* as needed. The Filter Table screen is displayed.
3. Select the checkbox next to the name of the chain you want to change (*FORWARD, INPUT, OUTPUT*).
4. Click *Change Policy.*
5. Select *Accept* or *Drop* from the pull-down menu.
6. Click *Save*.

To add a rule:

1. Select *Appliance Settings - Firewall*.
2. Select either *IPv4 Filter Table* or *IPv6 Filter Table* as needed. The Filter Table screen is displayed.
3. From the chain list, click the name of the chain to which you wish to add a rule. The Rules screen is displayed.
4. Click *Add*. The Add Rule screen is displayed.
5. Configure the rule as needed.
6. Click *Save*.

To edit a rule:

1. Select *Appliance Settings - Firewall*.
2. Select either *IPv4 Filter Table* or *IPv6 Filter Table* as needed. The Filter Table screen is displayed.

3. From the chain list, click the name of the chain to which you wish to edit a rule. The Rules screen is displayed.
4. Select the rule you want to edit and click *Edit*.
5. Modify the rule as needed.
6. Click *Save*.

IPSec(VPN)

Virtual Private Network (VPN) enables a secured communication between the console server and a remote network by utilizing a gateway and creating a secured connection between the console server and the gateway. IPSec is the protocol used to construct the secure tunnel. IPSec provides encryption and authentication services at the IP level of the protocol stack.

NOTE: IPSec(VPN) is not supported with IPv6.

When *Appliance Settings - IPSec(VPN)* is selected, the IPSec(VPN) screen is displayed.

Use the *Add* button to add a VPN connection or click on an existing connection name to edit one already in the list. Click the *Delete* button to delete an existing connection. If NAT settings need to be changed, click the *Configure NAT* button.

When you click the *Add* button, the *IPSec(VPN) - Add* screen is displayed.

The remote gateway is referred to as the remote or right host and the console server is referred to as the local or left host. If left and right are not directly connected, then you must also specify a NextHop IP address.

The next hop for the remote or right host is the IP address of the router to which the remote host or gateway running IPSec sends packets when delivering them to the left host. The next hop for the left host is the IP address of the router to which the console server sends packets to for delivery to the right host.

A Fully Qualified Domain Name in the ID fields for both the Local (Left) host and the Remote (Right) host where the IPSec negotiation takes place should be indicated.

The following table describes the fields and options on the *IPSec(VPN) - Add* screen. The information must match exactly on both ends for local and remote.

Table 4.5: Field and Menu Options for Configuring IPSec(VPN)

Field Name	Definition
Connection Name	Any descriptive name you wish to use to identify this connection such as **MYCOMPANYDOMAIN-VPN**.
Authentication Protocol	The authentication protocol used, either ESP (Encapsulating Security Payload) or AH (Authentication Header).

Table 4.5: Field and Menu Options for Configuring IPSec(VPN) (Continued)

Field Name	Definition
Boot Action	The boot action configured for the host, either *Ignore*, *Add* or *Start*.
Authentication Method	Authentication method used, either RSA Public Keys or Shared Secret.
Remote (Right) Side - and - Local (Left) Side	Enter the required address or text for each of the four fields for both Remote Side and Local Side: ID: This is the hostname that a local system and a remote system use for IPSec negotiation and authentication. It can be a fully qualified domain name preceded by @. For example, **hostname@xyz.com** IP Address: The IP address of the host. NextHop: The router through which the console server (on the left side) or the remote host (on the right side) sends packets to the host on the other side. SubNet: The netmask of the subnetwork where the host resides. Use CIDR notation. The IP number followed by a slash and the number of 'one' bits in the binary notation of the netmask. For example, 192.168.0.0/24 indicates an IP address where the first 24 bits are used as the network address. This is the same as 255.255.255.0.
RSA Key (If *RSA Key* is selected)	For IPSec(VPN) authentication, you need to generate a public key for the console server and find out the key used on the remote gateway. Copy and paste for copying the RSA key from another source is supported.
Pre-Shared Secret (If Secret is selected)	Pre-shared password between left and right users.

SNMP Configuration

An administrator can configure SNMP, which is needed if notifications are to be sent to an SNMP management application.

NOTE: The Avocent ACS 6000 Enterprise MIB text file is available in the appliance. Follow the filename: /usr/local/mibs/ACS6000-MIB.asn. The Avocent ACS 6000 Enterprise TRAP MIB text file is available in the appliance. Follow the filename: /usr/local/mibs/ACS6000-TRAP-MIB.asn. Also visit www.avocent.com to find both files.

To configure SNMP:

1. Click *Application Settings - SNMP - System*. The System screen is displayed.
2. Enter the SysContact information (email address of the console server's administrator, for example, **acs6000_admin@avocent.com**).
3. Enter the SysLocation information (physical location of the console server, for example, **Cyclades_ACS6000**).
4. Click *Save*.
5. Click *Application Settings - SNMP - SNMP v1,v2,v3*. The SNMP v1,v2,v3 screen is displayed.

6. Click *Add*.
7. Enter the community name for SNMP v1/v2 or the username for SNMP v3 in the Name field.
8. Enter the OID.
9. Select the desired permission from the pull-down menu. Choices are *Read and Write* or *Read Only.*
10. If the required SNMP version is v1 or v2, click the *Version v1, v2* button, then enter the source (valid entry is the subnet address).

    -or-

    If the required SNMP version is v1 or v2 using an IPv6 network, click the *Version v1,v2 for IPv6 network* button, then enter the source (valid entry is the subnet address).

    -or-

    If the require SNMP version is v3, click the *Version v3* button, then select the Authentication Type (MD5 or SHA), enter the authentication passphrase or password, enter the privacy passphrase for DES and select the Minimum Authentication Level (Auth, NoAuth, Priv).
11. Click *Save*.

Date and Time

The ACS 6000 console server provides two options for setting date and time. You can set the console server to retrieve data and time from a network time protocol (NTP) server, or in situations where that is impractical or prohibited, you can set the time manually so that the console server's internal clock is used to provide time and date information.

NOTE: The Current Time displayed in the Date & Time screen shows only the time when the screen was opened. It does not continue to update in real time.

To set the time and date using NTP:

1. Click *Applications Settings - Date And Time.* The Date & Time screen is displayed.
2. Select *Enable network time protocol* to activate the NTP server field.
3. Enter the NTP server site of your choice.
4. Click *Save*.

To set the time and date manually:

1. Click *Applications Settings - Date And Time.* The Date & Time screen is displayed.
2. Select *Set manually* to activate the fields used to enter date and time data.
3. Using the pull-down menus, select the required date and time.
4. Click *Save*.

To set the time zone using predefined time zone:

1. Click *Applications Settings - Date And Time - Time Zone*. The Time Zone screen is displayed.
2. Select *Predefined* to activate the time zone list pull-down menu.
3. Select the required time zone from the pull-down menu.
4. Click *Save*.

To define custom time zone settings:

1. Click *Applications Settings - Date And Time - Time Zone*. The Time Zone screen is displayed.
2. Select *Define Time Zone* to activate the fields used to create a user-defined time zone.
3. Enter the Time Zone Name and Standard Time Acronym of your choice.
4. Enter the GMT Offset (for example: -7:00).
5. Select *Enable daylight savings time* to activate the fields used to configure daylight savings time settings.
6. Select or enter the required values for daylight savings time settings.
7. Click *Save*.

Boot Configuration

Boot configuration defines the location from which the console server loads the operating system. The console server can boot from its internal firmware or from the network. By default, the ACS 6000 console server boots from Flash memory. Clicking *Appliance Settings - Boot Configuration* will display the Boot Configuration screen.

If you need to boot from the network, make sure the following prerequisites are met:

- A TFTP or BootP server must be available on the network
- An upgraded console server boot image file must be downloaded from Avocent and made available on the TFTP or BootP server
- The ACS 6000 console server must be configured with a fixed IP address
- The boot filename and the IP address of the TFTP or BootP server is known

To configure boot configuration:

1. Click *Applications Settings - Boot Configuration*. The Time Zone screen is displayed.
2. Under Boot Mode, select *From Flash*, and select *Image 1* or *Image 2*.

   -or-

   Select *From Network*, and enter the following information:

   - Appliance IP Address: Enter the fixed IP address or a DHCP assigned IP address to the console server.
   - TFTP Server IP: Enter the IP address of the TFTP boot server.

- Filename: Enter the filename of the boot firmware.

3. Select whether the Watchdog Timer is enabled or disabled. If the Watchdog Timer is enabled, the console server reboots if the software crashes.
4. Select one of the following speeds for both Ethernet 0 Mode and Ethernet 1 Mode: 100BT full, 100BT half, 10BT full, 10BT half or Auto.
5. Select the console port speed.
6. Click *Save*.

Online Help

When the online help feature is configured for your console server, clicking the *Help* button from any form on the Web Manager opens a new window and redirects its content to the configured path for the online help product documentation.

NOTE: Using the online help feature from the Avocent/Cyclades server is not always possible due to firewall configurations, nor is it recommended. It is generally advisable for you to use the online help system provided with the product or download the online help .zip file and run it from a local server.

Online help for the ACS console server is shipped with the product. The system administrator can also download the online help from Avocent. For more information on downloading the online help, contact Technical Support.

Once the online help file is obtained (in zip format), the files must be extracted and put in to a user-selected directory under the web server's root directory. The web server must be publicly accessible.

NOTE: The default URL for online help is http://global.avocent.com/us/olh/acs6000/v_1.1.0/en/index.html.

To configure online help to run from the local server:

1. Click on *Appliance Settings - Online Help*. The Online Help configuration screen is displayed.
2. Enter the full URL of the online help, ending in /index.html, on the local web server.
3. Click *Save*.

Power Management

Connected power devices can be used for remote power management. The ACS 6000 console server enables users who are authorized for power management to turn power on, turn power off and reset devices that are plugged into a connected PDU.

The following types of power devices can be connected to any serial port or to the AUX/Modem port (if an internal modem is not installed):

- Avocent Power Management Power Distribution Unit (PM PDU) 1000/2000/3000

- Cyclades PM Intelligent Power Distribution Units (IPDUs) - With Cyclades PM IPDUs, up to 128 outlets can be daisy-chained and managed from a single serial port.
- Avocent SPC power control devices.
- Server Technology Sentry™ family of Switched Cabinet Power Distribution Units (CDUs) and switched CDU Expansion Module (CW/CX) power devices. One additional level of power devices can be daisy-chained with ServerTech Expansion modules.
- Server Technology Sentry Power Tower XL™ (PTXL) and Power Tower Expansion Module (PTXM) power devices.

NOTE: The term PDU refers to any of these types of power devices.

The ACS 6000 console server automatically recognizes and supports a Cyclades PM PDU or Avocent SPC device when the serial port to which the power device is connected has been configured for power management.

For supported Server Technology PDUs, the ACS 6000 console server must be managed by a DSView 3 server (version 3.5.1 or above), the needed power device license must be present and the power device must be added to the DSView 3 software.

The license is automatically downloaded from the DSView 3 server onto the ACS 6000 console server, and then configuration and management can be performed either through the DSView software or through the Web Manager.

Settings

Authorized users can use the Web Manager or the CLI to perform the following tasks.

To manage power settings:

1. Log into the Web Manager as a user who is authorized to manage power.
2. Select *Power Management - Settings*. The Settings window appears.
3. Select the checkbox next to the PDU for which you want to manage power.
4. Click *Factory Defaults*, if desired. A confirmation box appears. Click *OK*.
5. To change the PDU ID, click *Rename* and enter the name in the New PDU ID field.
6. Click *Save*.

To view/change PDU settings:

1. Select *Power Management - Settings*. The Settings window appears.
2. Click on the name of the PDU for which you want to view information. The PDU Information window appears and the side navigation bar displays a list of options:
   a. Click on *Overview* to see PDU Information and upgrade the Cyclades PDU firmware.
   b. Click on *PDU* to see PDU settings. The Settings window appears. You can change the Power Cycle Interval, Syslog, Buzzer, Nominal Voltage, Power Factor, Current Critical Threshold and SW Overcurrent Protection from this window. Click *Save* when finished.

c. Click on *Phases*. The Phases window appears displaying each phase and its settings. Click on the name of a phase to change its settings. The Phase Settings window appears. You can change the Current Critical Threshold, Current Warning Threshold and Current Low Warning Threshold from this window. Click *Save* when finished.

d. Click on *Banks*. The Banks window appears displaying each bank and its settings. Click on the name of a bank to change its settings. The Bank Settings window appears. You can change the Current Critical Threshold, Current Warning Threshold and Current Low Warning Threshold from this window. Click *Save* when finished.

e. Click on *Outlet Table*. The Outlet Table window appears displaying each outlet number and its settings. The Outlet Edit window appears. You can change the Outlet Name, Post On Delay, Post Off Delay, Current Critical Threshold, Current Warning Threshold and Current Low Warning Threshold from this window. Click *Save* when finished.

NOTE: The PDU model defines available parameters in the Settings window.

Management

By selecting the *Management* tab, you can view status and statistics for all PDUs. You can also turn on, turn off, cycle or reboot selected PDUs, or reset the overcurrent protection.

To manage power:

1. Select *Power Management - Management*. The Management window appears.
2. Select the checkbox next to the PDU for which you want to manage power.
3. Click *On, Off, Cycle, Reboot PDU or Reset HW Overcurrent Protection,* if desired. A confirmation appears. Click *OK*, then click *Save*.

To view and change PDU power management information:

1. Select *Power Management - Management*. The Management window appears.
2. Click on the name of the PDU for which you want to view information. The PDU Information window appears and the side navigation bar displays a list of options:
   a. Click on *Current, Voltage, Power Consumption, Cumulative Power, Environment* or *Outlet Table* to see the appropriate information on the PDU and each of its banks and outlets.
   b. To reset the values, select an option then check the box next to the PDU, bank or outlet you want to reset then click on the *Reset Values* button. A confirmation box opens. Click *Yes*, then click *Save*.

Outlet Groups

By selecting the *Outlet Groups* tab, you can view status, outlet and power consumption for outlet groups. You can also turn on, turn off or cycle selected outlet groups.

To manage outlet groups:

1. Select *Power Management - Outlet Groups*. The Outlet Groups window appears.
2. Check the box next to the name of the Outlet Group you want to manage.
3. Click the *On*, *Off* or *Cycle* radio button, if desired, then click *Sav*e.

To view and change outlet group information:

1. Select *Power Management - Outlet Groups*. The Outlet Groups window appears.
2. Click on the name of the outlet group for which you want to view information. The Outlet Group Information window appears and the side navigation bar displays a list of options.
3. Click on *Current*, *Voltage*, *Power Consumption*, *Cumulative Power*, *Environment* or *Outlet Table* to see the appropriate information on the outlet group and each of its banks and outlets.
4. To reset the values, select an option then check the box next to the outlet group, bank or individual outlet you want to reset then click on the *Reset Values* button. A confirmation box opens. Click *Yes*, then click *Save*.

Power configuration

During hardware installation, the installer can connect power devices to serial ports or the AUX/ Modem port. During software configuration, the administrator can do the following:

- Enable the ports
- Configure the ports for power management (assign the Power Profile)
- Configure the Power Profile for this PDU (PDU type, polling rate and speed auto detection)
- (Optional) Create groups of power outlets
- Configure user group authorizations for the ports and for power management of outlets

Configuring a port for a connected PDU

When a serial port is connected to a power device, an administrator can configure power on the Serial Port settings window. When the AUX/Modem port is connected to a power device, an administrator can configure power on the AUX Port Settings window.

The following example shows the Serial Profile and PDU Type menus and the Polling Rate field, which are the same for the serial port and AUX/Modem port.

NOTE: The Power option does not appear on the Serial Profile for the AUX Port if an internal modem is installed on the console server.

To enable and configure a port that is connected to a power device:

1. When the PDU is connected to serial port, select *Appliance Settings - Ports - Physical Ports - Serial Ports.*

   - or -

   When the PDU is connected to the AUX/Modem port, select *Appliance Settings - Ports - Physical Ports - Auxiliary Ports*.

2. Select *Enabled* from the Status menu.
3. Select *Power* from the Serial Profile menu.
4. Click *Save*.
5. Select *Appliance Settings - Ports - Power Profile - Devices*.
6. Select the device where the PDU is connected.
7. Select one of the following options from the PDU Type menu:
   - *Auto* - for auto detection of the type
   - *Cyclades* - for a Cyclades PM PDU
   - *ServerTech* - for a Server Technology PDU
   - *SPC* - for an Avocent SPC PDU
8. (Optional) Enable speed auto detection.
9. (Optional) Configure the polling rate.
10. Click *Save*.

To enable and configure a port connected to a server to allow power management by connected users:

Perform this procedure to configure a port that is connected to a server console when that server is also plugged into outlets on one or more connected PDUs. This procedure identifies the outlet(s) where the server is plugged in. Users can then manage power for the server while they are connected to the server.

NOTE: If you want users to manage power for the connected device, make sure each user is a member of a group that is authorized to manage power for the specified outlets or has power control rights for the target serial port.

1. Select *Appliance Settings - Ports - Physical Ports - Serial Ports* and select a port.
2. Select *Enabled* from the Status menu.
3. Select *CAS* from the Serial Profile menu.
4. Click *Save*.
5. Select *Appliance Settings - Ports - CAS Profile - Devices.*
6. Click the number of the port in the Devices list.
7. Configure the port in the General, Alerts and Data Buffering windows.
8. Select *Power.*
9. Click *Add*. The Power - New Outlet window appears.
10. Click *Assign*. The Power window appears.
11. To specify outlets on an already-configured PDU, perform the following steps:
    a. Click the *Select PDU* radio button.
    b. Select a PDU name from the Connected PDUs pull-down menu.

c. Enter the number(s) of the outlet(s) to which the server is connected in the Outlets field.

d. Click *Save*.

12. To configure outlets on a PDU that is not currently connected, perform the following steps:
    a. Enter the name of a PDU that is not currently connected in the Custom - PDU ID field.
    b. Enter the number(s) of the outlet(s) to which the server is or will be connected in the Outlets field.
13. Click *Save*.

To configure a new or existing user group for power management:

Like port authorizations, power authorizations are controlled with group membership. At least one group is assigned during initial configuration of each user account. To add multiple users to a group, you can use the Members window to configure multiple users from a list of all configured users, such as:

- Assigning one or more PDUs to a group to authorize the group to manage the entire PDU (upgrade firmware, change outlet names and PDU names) and manage power on all of its outlets.
- Assigning one or more outlets to a group to authorize the group to manage the specified outlets. Power management commands are on, off, cycle and - for Cyclades PDUs only - lock and unlock.

NOTE: On the Authorizations - Power - PDU - Power screen, all configured PDUs are listed. If you specify a PDU name in the Custom PDU ID field and assign it to a group, the group members can access the PDU when it is connected.

To authorize groups of users to perform power management:

1. Select *Appliance Settings - Users - Authorization - Groups.*
2. (Optional) To add a group, click *Add*, enter the name of the group in the New Authorization Group field and click *Save*.
3. To add members to a group, perform the following steps:
    a. Select the *group_name*.
    b. Click *Assign*. The Members window appears.
    c. Select usernames from the Available Users list and click *Add*.
    d. (Optional) To add remote users (configured on remote authentication servers) to the selected group, enter comma-separated usernames in the New Remote Users field.
    e. Click *Save*.
4. To authorize the group for power management, select *group_name*.
5. Select *Access Rights - Power.*
6. To authorize the group for configuration and power management of an entire PDU, perform the following steps.

a. Select *PDU*. The PDU window appears.
b. Click *Assign*. The Power window appears with a list of all configured PDUs.
c. Select a PDU name from the list of Available PDUs and click *Add*.
d. (Optional) To configure access to a PDU that has not yet been connected and configured, specify a PDU name in the Custom - PDU ID field and assign it to the group.
e. Click *Save*.

7. To authorize the group for power management of selected outlets, perform the following steps.
   a. Select *Outlets*. The Outlets window appears.
   b. Click *Add*. The Add Outlet window appears.
   c. Click the *Select PDU* radio button.
   d. Select a PDU from the Connected PDUs menu.
   e. Enter the outlet numbers in the Outlet field.
8. (Optional) To authorize management of outlets on a PDU that has not yet been connected and configured, perform the following steps:
   a. Specify a PDU name in the Custom - PDU ID field.
   b. Enter the outlet numbers in the Outlet field.
9. Click *Save*.

To change the PDU password to match a changed password on the PDU:

Perform this procedure only if the password is changed on the PDU. The password configured in this window is used by the console server software to connect to the PDU.

1. Select *Appliance Settings - Ports - Power Profile - Login*.
2. Enter the password currently used on the PDU in the password field for the correct type of PDU.

NOTE: The same password specified in this procedure is used to access all PDUs of the selected PDU model (Cyclades, SPC or ServerTech).

3. Click *Save*.

To configure outlet groups:

1. Select *Appliance Settings - Ports - Power Profile - Outlet Group*.
2. Click *Add*. The Outlet Group - Add Group window appears.
3. Enter a name for the group in the Group Name field. The name can contain only numbers, letters, underscore (_) and dash (-) characters. The name should not start with a dash.
4. Click *Save*. The group name gets added to the Outlet Group list.
5. Click the group name. The Outlet Setting screen appears.
6. Select a PDU and click *Add*.

7. Click the *Select PDU* radio button and select a PDU from the Connected PDUs menu.
8. Enter the outlets in the Outlet field.
9. (Optional) Click the *Custom* radio button, enter PDU name in the PDU ID field and enter the outlets in the Outlet field. When a PDU with the specified name is connected and the port is enabled and configured, the outlet group can manage the specified outlets on that PDU.

To upgrade firmware on a Cyclades PDU:

1. Log into the Web Manager as a user who is authorized to manage power.
2. Select *Power Management - Settings*. The PDU Devices window appears.
3. Click the name of the PDU to be upgraded. The Overview screen appears.
4. If a more-recent firmware version is available for the Cyclades PM PDU at http://www.avocent.com/web/en.nsf/Content/Cyclades_Download-PM, download the firmware onto a local FTP server on the same subnet as the console server.
5. Click *Upgrade firmware*. The Upgrade PM Firmware screen appears.
6. Enter the name of the FTP server, the username, password and path to the firmware file.
7. Click *Download*.
8. After the download completes, verify the new version. If it is correct, click *Upgrade Now* to upgrade the firmware.
9. When the upgrade is done and the screen with the result of the operation appears, click *Finish*.

To upgrade software on a non-Cyclades PDU:

Avocent SPC power devices are not user upgradable. For Server Technology PDUs, upgrades must be done through a network port. Contact Server Technology support to check if new software is available and to obtain information on how to upgrade the device.

Monitoring

When you click *Monitoring*, a variety of network and console port information is available for viewing. The screens are only for viewing and have no interactivity with the user. The following table shows the types of information available.

Table 4.6: Monitoring Screens

Screen Name	Definition
Network - Devices	Shows Ethernet ports and PC card Device Name, Status (enabled/disabled), IPv4 Address, IPv4 Mask and IPv6 Address.
Network - IPv4 Routing Table	Shows Destination, Gateway, Genmask, Flags, Metric, Ref, Use and Iface.
Network - IPv6 Routing Table	Shows Destination, NextHop, Flags, Metric, Ref, Use and Iface.
Serial Status	Shows Device Name, Connection Name, Profile, DTR, DCD, RTS, CTS and CAS Sessions.

Table 4.6: Monitoring Screens (Continued)

Screen Name	Definition
Serial Statistics	Shows Device Name, Speed, TX Bytes, RX Bytes, Frame Error, Parity Error, Break and Overrun.

Active Sessions

The ACS 6000 console server allows multiple users to log in and run sessions simultaneously. The Active Sessions feature allows you to view all active sessions and to terminate (kill) any unwanted sessions. Click *Active Sessions* to view all open sessions on the console server.

NOTE: If you start another session with the console server while viewing this screen, it will not be visible until you click *Refresh* at the top of the Web Manager window.

To kill an active session:

1. Click *Active Sessions*. The Active Sessions screen is displayed and lists all open sessions to the console server by the user's workstation IP.
2. Select the checkbox next to the session you want to kill, then click the *Kill* button.

CAUTION: It is possible to kill your own session. Be sure to know your workstation IP and session type. If you kill your session, you will see the *Your session has been terminated* message and you will have to log in again.

3. After a few seconds, the Active Session screen will redisplay the open sessions, minus the one you killed.

APPENDICES

Appendix A: Techical Specifications

Table A.1: Technical Specifications for the ACS 6000 Console Server Hardware

General Information	
CPU	PPC440EPx @ 533 MHz (PowerPC with Security Acceleration Engine)
Memory	256 MB DDR-2 / 128 MB NAND Flash (embedded ICs on motherboard)
Interfaces	2 Ethernet 10/100/1000BT on RJ-45 1 RS232 Console on RJ-45 1 AUX RS232 on RJ-45 or internal MODEM V.92 on RJ-45 (RJ11 compatible) RS232 Serial Ports on RJ-45 1 USB 2.0 Host on Type A connector 2 PC Card / CardBus with ejector (dual Type II or single Type III)
Power Information	
Power Supply	Internal 100-240 VAC, 50/60 Hz Optional Dual entry, redundant power supplies -48 VDC option available
Power Consumption	Nominal voltage 120 VAC: Typical 0.17 A, 20 W Maximum 0.25 A, 30 W Nominal voltage 230 VAC: Typical 0.1 A, 23 W Maximum 0.15 A, 35 W Nominal voltage -48 VDC (20% tolerance) Typical 0.5 A
Ambient Atmospheric Condition Ratings	
Operating Temperature	32 ^{o}F to 122 ^{o}F (0^{o} C to 50^{o} C)
Storage Temperature	-4 ^{o}F to 158 ^{o}F (-20^{o} C to 70^{o} C)
Humidity	20% to 80% relative humidity (non-condensing) across the operating temperature range
Dimensions	
Height x Width x Depth	1.715 x 17.250 x 9.50 in (4.3561 x 43.815 x 24.13 cm)
Weight	6.6 pounds (2.994 kg)

Table A.1: Technical Specifications for the ACS 6000 Console Server Hardware (Continued)

Certifications	Emissions and Immunity: FCC Class A (USA), CE Class A (EU), ICES-003 (Canada), VCCI (Japan), C-Tick (Australia, no internal modem), A-Tick (Australia, with internal modem) Safety: UL 60950-1 (USA), cUL (Canada), EN-60950-1 (EU), CB

Appendix B: Safety, Regulatory and Compliance Information

Safety, regulatory and compliance information for the ACS 6000 console server is described in this appendix.

Safety and environmental guidelines for rack mounting the console server

The following considerations should be taken into account when rack mounting the Cyclades ACS 6000 advanced console server.

Temperature

The manufacturer's maximum recommended ambient temperature for the ACS 6000 console server is 122 ºF (50 ºC).

Elevated operating ambient temperature

If the console server is installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer’s maximum rated ambient temperature. See above.

Reduced air flow

Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

Mechanical loading

Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

Circuit overloading

Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

Reliable earthing

Reliable earthing of rack mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit, such as power strips or extension cords.

Safety precautions for operating the ACS 6000 console server

Please read all the following safety guidelines to protect yourself and your Cyclades ACS 6000 advanced console server.

WARNING: Do not operate your Cyclades ACS 6000 advanced console server with the cover removed.

CAUTION: To avoid shorting out your Cyclades ACS 6000 advanced console server when disconnecting the network cable, first unplug the cable from the Host Server, unplug external power (if applicable) from the equipment and then unplug the cable from the network jack. When reconnecting a network cable to the back of the equipment, first plug the cable into the network jack and then into the host server equipment.

CAUTION: To help prevent electric shock, plug the Cyclades ACS 6000 advanced console server into a properly grounded power source. The cable is equipped with a three-prong plug to help ensure proper grounding. Do not use adaptor plugs or remove the grounding prong from the cable. If you have to use an extension cable, use a three-wire cable with properly grounded plugs.

CAUTION: To help protect the Cyclades ACS 6000 advanced console server from electrical power fluctuations, use a surge suppressor, line conditioner or uninterruptible power supply. Be sure that nothing rests on the cables of the console server and that they are not located where they can be stepped on or tripped over. Do not spill food or liquids on console server.

CAUTION: Do not push any objects through the openings of the Cyclades ACS 6000 advanced console server. Doing so can cause fire or electric shock by shorting out interior components.

CAUTION: Keep your Cyclades ACS 6000 advanced console server away from heat sources and do not block host's cooling vents.

CAUTION: The Cyclades ACS 6000 advanced console server DC models are to be installed with a maximum 20A Listed circuit breaker or branch-rated fuse.

CAUTION: The Cyclades ACS 6000 advanced console server DC-powered models are only intended to be installed in restricted access areas (dedicated equipment rooms, equipment closets or the like) in accordance with Articles 110-18, 110-26 and 110-27 of the National Electrical Code, ANSI/NFPA 701, 1999 Edition. Use 18 AWG or 0.75 mm2 or above cable to connect the DC configured unit to the Centralized D.C. Power Systems. Install the required double-pole, single-throw, DC rated UL Listed 20A listed circuit breaker or branch-rated fuse between the power source and the Cyclades ACS 6000 advanced console server DC version. Minimum Breaker Rating: 2A. Required conductor size: 18 AWG or larger.

CAUTION: To reduce the risk of fire, use only No. 26 AWG or larger UL Listed or CSA Certified Telecommunication Line Cord (for example, 24 AWG).

Working inside the console server

Do not attempt to service the console server yourself, except when following instructions from Avocent Technical Support personnel. In the latter case, first take the following precautions:

1. Turn the console server off.
2. Ground yourself by touching an unpainted metal surface on the back of the equipment before touching anything inside the unit.

NOTE: To comply with FCC standards, the ACS 6000 console server requires the use of a shielded CAT 5 cable for all port connections. Notice that this cable is not supplied with either of the products and must be provided by the customer. See the inside cover for the FCC Warning Statement and Canadian DOC Notice.

Electrostatic Discharge (ESD) precautions

When handling any electronic component or assembly, you must observe the following antistatic precautions to prevent damage.

- Always wear a grounded wrist strap when working around printed circuit boards.
- Treat all assemblies, components and interface connections as static-sensitive.
- Avoid working in carpeted areas.
- Keep body movement to a minimum while removing or installing boards to minimize the buildup of static charge.

Replacing the battery

CAUTION: There is the danger of explosion if the battery is replaced incorrectly. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Aviso de Precaución

Por favor de leer todos los avisos de precaución como medida preventiva para el operador y el ACS 6000 console server.

IMPORTANTE: No hacer funcionar el ACS 6000 console server con la tapa abierta.

IMPORTANTE: Para prevenir un corto circuito en el ACS 6000 console server al desconectarlo de la red, primero desconectar el cable del equipo y luego el cable que conecta a la red. Para conectar el equipo a la red, primero conectar el cable a la red y luego al equipo.

IMPORTANTE: Asegurarse que el equipo este conectado a tierra, para prevenir un shock eléctrico. El cable eléctrico del equipo viene con tres clavijas para conectar asegurar conexión a tierra. No use adaptadores o quite la clavija de tierra. Si se tiene que utilizar una extensión, utilice una que tenga tres cables con clavija para conexión a tierra. Para proteger al ACS 6000 console server de fluctuaciones en corriente eléctrica, utilice una fuente eléctrica de respaldo. Asegurarse de que nada descanse sobre los cables del ACS 6000 console server, y que los cables no obstruyan el paso. Asegurarse de no dejar caer alimentos o bebidas en el Cyclades ACS 6000 Advanced Console Server Installation/Administration/User Guide. Si esto ocurre, avise a Avocent Corporation.

IMPORTANTE: No empuje ningún tipo de objeto en los compartimientos del ACS 6000 console server. Hacer esto podría ocasionar un incendio o causar un corto circuito dentro del equipo.

IMPORTANTE: Mantenga el ACS 6000 console server fuera del alcancé de calentadores, y asegurarse de no tapar la ventilación del equipo.

IMPORTANTE: El ACS 6000 console server con alimentación de corriente directa (CD) solo debe ser instalado en áreas con restricción y de acuerdo a los artículos 110-18, 110-26, y 110-27 del National Electrical Code, ANSI/NFPA 701, Edición 1999. Para conectar la corriente directa (CD) al sistema, utilice cable de 0.75 mm (18 AWG). Instalar el interruptor corriente directa (CD) aprobado por UL entre la fuente de alimentación y el Cyclades ACS 6000 advanced console server. El limite mínimo del interruptor deberá ser 2 amperes, con conductor de 0.75 mm (18 AWG).

Trabajar dentro del ACS 6000 console server

No intente dar servicio al ACS 6000 console server, solo que este bajo la dirección de Soporte Técnico de Avocent. Si este es el caso, tome las siguientes precauciones:

Apague el ACS 6000 console server. Asegurase que este tocando tierra antes de tocar cualquier otra cosa, que puede ser al tocar la parte trasera del equipo.

Batería

IMPORTANTE: Una batería nueva puede explotar, si no esta instalada correctamente. Remplace la batería cuando sea necesario solo con el mismo tipo recomendado por el fabricante de la batería. Deshacerse de la batería de acuerdo a las instrucciones del fabricante de la batería.

Appendix C: Technical Support

Our Technical Support staff is ready to assist you with any installation or operating issues you encounter with your Avocent product. If an issue should develop, follow the steps below for the fastest possible service.

To resolve an issue:

1. Check the pertinent section of this manual to see if the issue can be resolved by following the procedures outlined.
2. Visit www.avocent.com/support and use one of the following resources:

   Search the knowledge base or use the online service request.
   -or-
   Select *Technical Support Contacts* to find the Avocent Technical Support location nearest you.

For Technical Support:
www.avocent.com/support

590-767-501B